MASSACHUSETTS

AGRICULTURAL EXPERIMENT STATION

CONTROL SERIES BULLETIN No. 91 DECEMBER, 1937

Inspection of Agricultural Lime Products

By H. D. Haskins

This is the twenty-sixth report on the inspection of agricultural lime products in Massachusetts. It gives the composition of the various products which have been sold in the State during the year. In case of the ground limestone products the mechanical analysis is also given.

Massachusetts State College

Amherst, Mass.

INSPECTION OF AGRICULTURAL LIME PRODUCTS FOR THE SEASON OF 1937

By H. D. Haskins, Official Chemist[1]

Manufacturers and Brands

During 1937, 23 firms registered for sale in Massachusetts 51 brands of lime products, manufactured and sold for neutralizing acid soils, one brand of gypsum, and one brand of agricultural talc. The products are grouped as follows:

Hydrated or slaked lime	27
Ground limestone	22
Oyster shell lime	1
Lime ashes	1
Total	51
Gypsum	1
Talc	1

The analytical results which appear in this bulletin represent officially drawn samples secured by the same sampling agents who drew the samples for the fertilizer inspection. The samples came from a wide range of territory within the State and it is believed that they are quite representative of the lime products sold in the State as soil amendments. All of the lime products registered were sampled and analyzed.

Variations and Deficiencies in the Composition of Lime Products

About 80 percent of the agricultural lime products analyzed fully met the minimum guarantees. Among the ground unburned lime products five showed deficiencies: four of these were only slight and were confined to only one ingredient, the other ingredient showing an overrun more than sufficient to balance the low test so that there was no decrease in neutralizing value. The Monarque Agricultural Dolomite, manufactured by Clifford L. Miller, was deficient 1.16 percent in calcium oxide and 1.80 percent in magnesium oxide, or a net deficiency in calcium oxide equivalent of 3.66 percent.

Mechanical Fineness of Unburned Lime Products

In Control Bulletin No. 87, December, 1936, page 9, were given the definitions of Pulverized Limestone (fine-ground limestone) and Ground Limestone (coarse ground limestone). In case of the former product all shall pass a 20-mesh and at least 75 percent shall pass a 100-mesh sieve. In case of the latter, all shall pass a 10-mesh and at least 50 percent shall pass a 100-mesh sieve. In order that the purchaser may more readily select the grade of limestone which he desires, the finer ground or pulverized products and the ground limestones or coarse-ground products have been grouped under appropriate headings in the table of analyses. From the published data it will be seen that out of a total of eighteen manufacturers, twelve furnish the pulverized or more finely ground product and six

[1] Assisted by H. Robert DeRose, Assistant Chemist, L. A. Graves, G. E. Taylor and C. L Whiting, Sampling Agents.

furnish the ground limestone or coarse-ground product. The finer an unburned limestone or shell lime is ground, the more rapidly will it become effective in neutralizing soil acidity and in furnishing calcium and magnesium to growing plants.

Eight brands out of a total of 29 showed deficiencies in either calcium or magnesium oxide: five of these brands had a sufficient overrun in the other ingredient so that no deficiency in calcium oxide equivalent was noted. Three brands showed net deficiencies in calcium oxide equivalent as follows:

Brewer & Co., Snow Fluff Agricultural Hydrate	3.08%
H. E. Millard, Sweet Arrow Hydrated Lime	4.73%
United States Gypsum Co., Red Top Hydrated Lime . .	4.05%

Explanation of Tables of Analyses

Table I, "Proportion of total oxides as carbonates." The data furnished in this column are calculated from an actual determination of carbon dioxide (CO_2). Calcium or magnesium not in the form of carbonate is present either as hydrated lime (water- or air-slaked), as burned lime (caustic or unslaked), or as basic silicate. All of the products listed in this table have at some time been burned, and the proportion of oxides present as carbonates indicates to what extent the product has absorbed carbonic acid from the air.

Tables II and III, "Carbonates of calcium and magnesium." The figures in this column are exclusive of the small amounts of calcium and magnesium combined as basic silicates; these are readily soluble in mineral acid solutions but obviously should not be classed as carbonates.

Under "Mechanical analysis" the figures represent in round numbers the percentage of product that would pass the various meshed sieves mentioned.

Tables I and II and III. "Neutralizing value expressed in terms of calcium oxide" represents the acid neutralizing value of both the magnesium and the calcium. The figures in the "percent" column are obtained by a direct titration with standard acid. The "pounds in one ton" are secured by multiplying the figures in the "percent" column by 20.

"Insoluble matter" represents material which is insoluble in dilute hydrochloric acid to which a few drops of nitric acid have been added.

The figures in parenthesis following the brand name show the number of samples collected and analyzed.

Table I. Hydrated or Slaked Lime.

Name of Manufacturer and Brand.	Calcium Oxide (CaO).		Magnesium Oxide (MgO).		Proportion of Total Oxides as Carbonates.	Neutralizing Value Expressed in Terms of Calcium Oxide.		Insoluble Matter.
	Found.	Guaranteed.	Found.	Guaranteed.		Per Cent.	Pounds in One Ton.	
Brewer & Co., Inc., 45 Arctic St., Worcester, Mass. (*a*)								
Sure Crop Agricultural Hydrate (3)	65.37	65.00	1.30	1.00	1/3	65.80	1,316	2.21
Producto Agricultural Lime (1)	72.48	60.00	7.81	1.00	1/17	81.20	1,624	2.88
Snow Fluff Agricultural Hydrate (3)	66.78	70.00	5.10	5.00	1/11	72.66	1,453	1.73
Green Mountain Handy Hydrated Lime (2)	69.10	65.00	3.84	1.00	1/12	72.24	1,445	1.78
Lime Kiln Ashes (1)	43.23	42.00	1.78	none	3/5	44.80	896*b*	12.48
Eastern States Farmers' Exchange, Springfield, Mass. (*c*)								
Eastern States Land Lime (1)	38.92	35.00	25.95	25.00	1/2	73.08	1,462	1.40
Eastern States Magnesian Hydrated Lime (3)	47.02	47.00	31.58	31.00	1/17	90.30	1,806	1.01
Eastern States Agricultural Hydrated Lime (1)	71.67	70.00	1.17	1.00	1/11	71.96	1,439	.88
Harris Lime Co., Saylesville, R. I. (*d*)								
Harris Agricultural Hydrate (3)	52.44	50.00	21.41	22.00	1/6	81.20	1,624	2.92
A. H. Hoffman, Inc., Landisville, Penn.								
Hoffman's Hydrated Lime (2)	68.28	70.00	2.35	1.50	1/13	69.72	1,394	3.46
Hoosac Valley Lime Co., Inc., Adams, Mass.								
Adams Land Lime (1)	58.72	60.00	2.10	.50	1/5	59.92	1,198	5.42
Lawrence Portland Cement Co., Thomaston, Maine.								
Dragon Mainrok Land Lime (3)	66.75	60.00	2.55	.20	1/5	68.60	1,372	1.85
Lee Lime Corp., Lee, Mass.								
Lee Agricultural Hydrated Lime (3)	47.04	47.00	31.51	31.00	1/12	88.90	1,778	1.18
Lee Land Lime (4)	38.32	35.00	25.06	25.00	1/2	72.80	1,456	1.52
H. E. Millard, Annville, Penn.								
Sweet-Arrow Hydrated Lime (1)	63.92	70.00	2.47	1.50	1/3	65.38	1,308	2.05
Clifford L. Miller, West Stockbridge, Mass.								
Monarque Agricultural Hydrated Lime (3)	65.88	60.00	5.21	4.00	1/11	73.08	1,462	3.32

New England Lime Co., Adams, Mass. (*e*)								
Nelco Agricultural Hydrated Lime (Adams) (3)	72.58	70.00	1.88	.50	1/13	73.92	1,478	1.06
Nelco Agricultural Hydrated Lime (Canaan) (2)	45.99	47.00	31.05	31.00	1/14	87.50	1,750	2.13
Nelco Land Lime (Canaan) (2)	42.48	35.00	28.85	25.00	1/5	81.20	1,624	1.48
Rockland-Rockport Lime Co., Inc., Rockland, Maine.								
Rockland Agricultural Hydrate (1)	51.43	45.00	23.61	23.00	1/7	82.82	1,656	.88
Sanilime (1)	70.34	70.00	1.45	.20	1/13	71.26	1,425	.40
R-R Land Lime, Special High Magnesia (1)	49.69	40.00	24.35	22.00	1/8	82.32	1,646	2.18
R-R Land Lime, Grade C (1)	61.11	60.00	2.64	.50	1/6	63.84	1,277	8.95
R-R Land Lime, Grade M (3)	59.05	55.00	5.46	4.00	1/7	66.22	1,324	5.75
R-R Land Lime, Grade M (1)	54.01	55.00	5.47	4.00	1/3	60.92	1,218	7.91
United States Gypsum Co., 300 West Adams St., Chicago, Ill. (*f*)								
USG Agricultural Hydrated Lime (1)	71.48	70.00	1.48	1.00	1/17	71.40	1,428	1.17
USG Red Top Hydrate Lime (1)	70.12	70.00	1.75	none	1/18	71.12	1,422	1.65
USG Red Top Hydrate Lime (1)	42.73	47.00	30.16	30.00	1/5	82.88	1,658	.22
USG Agricultural Land Lime (2)	69.44	60.00	2.30	none	1/12	71.26	1,425	2.54

a Plant at Winooski, Vt.
b The sample tested 4.40% potassium oxide and 2% phosphoric acid.
c Plant at Falls Village, Conn.
d Shipping point Berkeley, R. I.
e Plants at Adams, Mass., and Canaan, Conn.
f Plants at Farnams, Mass., and Falls Village, Conn.

Table II. Pulverized Limestone (Finely Ground Limestone)

Name of Manufacturer and Brand.	Calcium Oxide (CaO).		Magnesium Oxide (MgO.)		Carbonates of Calcium and Magnesium		Neutralizing Value Expressed in Terms of Calcium Oxide		Insoluble Matter	Mechanical Analysis (Per Cent)			
	Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.	Per Cent.	Pounds In One Ton.		Finer than 100-mesh	Between 100 and 80-mesh	Between 80 and 40-mesh	Between 40 and 10-mesh
American Agricultural Chemical Co., North Weymouth, Mass.													
Pownal Agricultural Limestone (1)	46.90	45.00	6.17	5.00	93.89	90.00	53.83	1,077	4.82	81.37	1.30	9.01	8.32
Dominion Lime Co., Lime Ridge, Quebec, Canada (*a*)													
Dudswell Agricultural Limestone (1)	52.86	52.00	1.51	.20	95.13	94.00	53.76	1,075	3.67	77.02	1.17	12.87	8.94
Eastern States Farmers' Exchange, Springfield, Mass. (*b*)													
Eastern States Magnesian Limestone (6)	31.28	29.00	21.02	20.00	95.88	93.50	59.01	1,180	2.19	79.15	3.40	14.01	3.44
Grangers Manufacturing Co., West Stockbridge, Mass.													
Grangers Agricultural Limestone (3)	41.38	35.00	7.94	1.00	90.44	90.00	51.80	1,036	9.29	84.26	2.36	9.52	3.86
Hazen Brothers, 14 Parker St., Arlington, Mass.													
High Grade Ground Magnesian Limestone (1)	27.23	26.00	14.83	13.00	67.24	67.24	40.97	819	25.50	85.10	2.43	8.29	4.18
Hoosac Marble Co., North Adams, Mass.													
Ground Limestone (1)	54.79	53.00	.91	.65	97.21	95.29	55.02	1,100	1.83	91.59	2.06	6.13	.22
Lawrence Portland Cement Co., Thomaston, Maine.													
Dragon Mainrok Finely Pulverized High Calcium Limestone (1)	53.65	50.00	1.30	.20	98.46	95.00	55.02	1,100	1.48	99.69	.31	none	none
Dragon Mainrok Finely Pulverized Dolomite Limestone (2)	28.00	25.00	18.69	15.00	85.18	70.00	51.04	1,021	12.85	99.46	.54	none	none
Lee Lime Corp., Lee, Mass.													
Tobey Pulverized Limestone (3)	38.75	30.00	12.60	5.00	94.12	64.00	54.60	1,092	5.22	89.51	1.97	6.92	1.60
Lee Pulverized Limestone (3)	31.11	30.00	21.70	20.00	93.50	93.00	58.10	1,162	2.87	80.13	3.47	8.23	8.17
Lee Pulverized Limestone (5)	33.15	30.00	19.25	20.00	96.25	93.00	58.45	1,169	2.07	79.69	3.26	13.80	3.25
Lee Pulverized Limestone (1)	31.02	30.00	22.33	20.00	95.71	93.00	59.28	1,186	1.26	79.27	3.73	14.26	2.74

Limestone Products Corporation of America, Newton, N. J.													
Lime Crest Calcite Pulverized (3)	44.49	34.00	7.97	1.00	94.26	90.00	53.55	1,071	4.88	92.38	.90	5.02	1.70
New England Lime Co., Adams, Mass. (*c*)													
Nelco Agricultural Ground Limestone (Adams) (2)	53.20	50.00	1.29	none	96.04	89.22	54.18	1,084	3.15	84.92	2.77	5.95	6.36
Nelco Agricultural Ground Limestone (Canaan) (1)	31.70	30.00	21.33	20.00	95.65	95.37	59.36	1,187	1.69	87.44	2.24	9.22	1.10
Rockland-Rockport Lime Co., Inc., Rockland, Maine													
R-R Ground Limestone, Grade C (1) . . .	54.32	48.00	.96	none	97.81	92.00	54.81	1,096	1.51	83.51	2.12	10.64	3.73
R-R Ground Limestone, Grade M (2) . . .	33.77	30.00	19.34	17.00	97.50	94.00	58.38	1,168	.92	82.73	4.39	11.29	1.59
United States Gypsum Co., 300 West Adams St., Chicago, Ill. (*b*)													
USG Agricultural Limestone (14) . . .	30.69	29.00	21.05	20.00	94.08	93.50	58.24	1,165	3.61	79.49	3.51	13.22	3.78

a Plant at Dudswell Junction, Quebec, Canada.
b Plant at Falls Village, Conn.
c Plants at Adams, Mass., and Canaan, Conn.

Table III. Ground Limestone (Coarsely Ground Limestone)

Name of Manufacturer and Brand.	Calcium Oxide (CaO).		Magnesium Oxide (MgO).		Carbonates of Calcium and Magnesium		Neutralizing Value Expressed in Terms of Calcium Oxide		Insoluble Matter	Mechanical Analysis (Per Cent)			
	Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.	Per Cent.	Pounds In One Ton.		Finer than 100-mesh	Between 100 and 80-mesh	Between 80 and 40-mesh	Between 40 and 10-mesh
Bluepoints Co., Inc., West Sayville, Long Island, N. Y.													
Sealshipt Brand Oyster Shell Lime (1)	46.98	45.00	1.85	.75	87.71	77.00	48.02	960	7.60	67.07	4.10	14.92	13.91
Connecticut Agstone Co., 301 Main St., Danbury, Conn.													
Phoenix Brand Agstone (2)	44.46	40.00	4.40	5.00	88.54	81.84	50.26	1,005	10.35	69.03	2.10	13.47	15.40
Hazen Brothers, 14 Parker St., Arlington, Mass.													
High Grade Ground Limestone (2) 1936 stock	53.56	53.71	1.55	.87	95.26	98.20	53.83	1,077	2.59	41.81	3.85	32.33	21.91
Hoosac Valley Lime Co., Inc., Adams, Mass.													
Hoosac Agricultural Limestone (1)	54.00	50.00	.84	.50	96.50	97.00	54.46	1,089	2.72	40.89	3.64	29.10	26.37
Clifford L. Miller, West Stockbridge, Mass.													
Monarque Agricultural Dolomite (3)	28.84	30.00	16.20	18.00	83.51	90.00	49.63	993	15.57	72.60	1.70	8.68	17.02
Monarque Agricultural Limestone (1)	39.31	35.00	10.24	6.00	91.56	90.00	53.13	1,063	7.40	67.18	1.51	11.65	19.66
D. U. Smith & Brother, Ashley Falls, Mass.													
Ashley White Dolomite Limestone (6)	30.94	30.00	21.15	21.00	97.86	98.00	59.15	1,183	1.39	45.39	5.75	29.63	19.23
Solvay Process Co., Syracuse, N. Y.													
Solvay Pulverized Limestone (1)	48.41	50.00	3.97	1.50	92.18	92.40	51.66	1,033	6.62	60.55	2.20	18.60	18.65

Table IV. Gypsum or Land Plaster.

Name of Manufacturer and Brand	Calcium Oxide (CaO).		Calcium Sulfate ($CaSO_4$).		Calcium and Magnesium Carbonates Found.
	Found.	Guaranteed.	Found.	Guaranteed.	
United States Gypsum Co., 300 West Adams St., Chicago, Ill. Ben Franklin Agricultural Gypsum (2)	46 01	30.00	24 72	64 50	41 66*

*Calcium hydrate ($Ca(OH)_2$) 26.37 percent.

NOTE: Apparently the product was a mixture of limestone, hydrated lime and gypsum. The sample was drawn at the warehouse of Joseph Breck & Sons, Boston: one-half ton was in stock and ten bags were sampled. An investigation by the manufacturer and by us indicates that the material became contaminated after leaving the manufacturer's possession.

Howard's Agricultural Talc
Registered by L. A. Howard Talc Co., Inc., Proctorsville, Vermont.

A sample said to be representative of the material was, at our request, sent to us by the producers, as our inspectors did not find any of the product on sale in Massachusetts. Analysis of this sample gave the following results, strong hydrochloric acid being used as the solvent:

	Percent
Magnesium oxide	20.51
Calcium oxide	2.07
Carbonic acid	6.60
Insoluble matter	46.89

By fusion with a mixture of sodium carbonate and potassium carbonate the product tested as follows:

	Percent
Magnesium oxide	31.48
Calcium oxide	2.56
Iron and aluminum oxides	14.32
Insoluble matter	30.40

From the above analysis the activity of the magnesium oxide and calcium oxide may be represented as follows:

	Percent
Calcium carbonate	3.69
Magnesium carbonate (4.56% MgO easily decomposed)	9.54
Magnesium oxide present as easily decomposible silicates	1.35
Magnesium oxide present as more difficultly decomposible silicates	14.60
Magnesium oxide insoluble in strong hydrochloric acid, but made soluble by fusion method (of doubtful value)	10.97
Neutralizing value in terms of calcium oxide	10.29

Note: The product is not a true talc, but a mixture of talc and carbonate of magnesia and calcium.

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MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

CONTROL SERIES BULLETIN NO. 92 FEBRUARY, 1938

Seed Inspection

By F. A. McLaughlin

This Report, the tenth in seed control service, is a record of work delegated to the Massachusetts Agricultural Experiment Station during 1937, by the Commissioner of Agriculture, who is named in the Act as Administrative Officer (Acts and Resolves of 1927, Chapter 274).

Massachusetts State College
Amherst, Mass.

ANNOUNCEMENT

The Seed Testing Laboratory will allow ten units of work free of charge, during any calendar year, to any resident firm or citizen of Massachusetts.

Units are rated as follows:	Units
Purity analysis (red clover, timothy, etc.)	1
Purity analysis (bluegrass, orchard grass, etc.)	2
Purity analysis of a mixture of seeds (depending upon the number of kinds in the mixture)	4–10
Examination for noxious weeds (4 oz. or fraction thereof) of samples not mixtures	1
Examination for noxious weeds (4 oz. or fraction thereof) of mixtures	4–10
Identification of seed or plant	1
Cleaning tobacco seed (4 oz. or fraction thereof)	2
Germination tests (4 x 100 seeds of any seed not chaffy or requiring a purity test)	1
Germination tests (soil, 2 x 100 seeds)	1
Germination tests (chaffy grasses or seeds requiring purity analysis)	2–4

Fees for work in excess of the ten free units allowed are as follows:

Germination test except for grasses other than timothy, but including clovers and alfalfa — thirty cents each.

Germination tests of grasses except timothy — fifty cents each.

Purity analyses of cereals — fifty cents each.

Purity analyses of timothy, and all other kinds of crop seeds, except grasses — seventy-five cents each.

Purity analyses of grasses and of all mixtures of not more than two kinds of agricultural seeds — one dollar each.

Purity analyses of special mixtures, including lawn grasses and pasture mixtures, a charge sufficient to cover the actual cost of working the sample, the amount of such fee depending entirely upon the character of the sample submitted for test, — minimum charge, one dollar and twenty-five cents.

In no case will the final report be rendered until all fees are paid.

SEED INSPECTION

By F. A. McLaughlin[1]

This bulletin gives the results of analysis of the official seed samples collected by the State Department of Agriculture, during the year 1937, from the open markets in 86 towns and cities of Massachusetts and analyzed at the Seed Testing Laboratory of the Massachusetts Agricultural Experiment Station at Amherst. This bulletin also contains results of field tests for trueness-to-type of 168 lots of vegetable seeds and 103 lots of flower seeds together with analysis of the flower seeds used in field tests; also notes on the methods used in cleaning locally produced onion seeds, amounts received, and value of the different grades as judged by germination tests.

From October 1, 1937 to December 1,[2] 1938, the Seed Laboratory received and worked 2180 samples of seed, of which 874 were collected by the State Commissioner of Agriculture, 1143 were sent in by seedsmen and farmers, and 173 by the American Can Company for cooperative research.

Classification of these samples, with the total number of tests involved, is shown in the following summary. It will be noted that the total number of tests required for the 2180 samples was 3040; 769 for purity and 2271 for germination.

Number of Samples		NUMBER OF TESTS Purity	Germination
421	Field Crops for Purity and Germination	421	421
89	Field Crops for Germination		89
94	Lawn Mixtures for Purity only	94	
151	Lawn Mixtures for Purity, Germinations involving 439 ingredients	151	439
1188	Vegetable Seeds for Germination		1188
103	Flower Seeds for Purity	103	
90	Flower Seeds for Germination		90
20	Tree Seeds for Germination		20
24	Tobacco Seeds for Germination		24
2180		769	2271

Explanation of the Tables

In these tables the seeds are listed in alphabetical order by groups, each group containing only those seeds, the sale of which is regulated by a definite section of the Massachusetts Seed Law. Section 261-A of the Acts and Resolves of 1927, Chapter 274, defines the group from Alfalfa to Timothy, inclusive; Section 261-B, Mixtures; Section 261-C, Special Mixtures; and Section 261-D, Vegetables.

The number preceding each analysis is for identification and reference. The line to the right of the letter "L" gives information copied from the label; that to the right of "F", what was found in the laboratory analysis. Attention is called to certain irregularities by the following:

The asterisk (*) shows violation in labeling.

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[1]Assisted by Miss Jessie L. Anderson, Technical Assistant.

[2]Laboratory year formerly from October 1 to October 1—changed to correspond with fiscal year beginning December 1.

Boldface type indicates low purity, low germination, excessive weed seed, noxious weeds not declared, or excessive inert material, depending upon the column in which it is found.

Other deficiencies are enumerated as follows:

(1) Noxious weeds found.
(2) Old seed (as shown by given date or by correspondence with the wholesaler).
(3) Ingredient found, but not declared.
(4) Ingredient declared, but not found.
(5) Ingredient declared, but percentage found after adding proper tolerance is less than 5%.
(6) Term not specific.

The letter "R" after the germination percentage in the table of vegetable seeds indicates that the sample has received one or more retests.

All lots of seed included in this report were tested according to the Rules for Seed Testing adopted by the Association of Official Seed Analysts.

"Tolerance" is applied to both purity and germination, except in those tables which list seeds falling under sections of the law not requiring purity or germination on the label. For the application of "Purity Tolerance", the sample is considered as made up of two component parts: (1) the component being considered, and (2) the balance of the sample. The tolerance in percentage allowed for each component shall be two-tenths of one per cent (0.2%) plus twenty per cent (20%) of the lesser of the two parts. "Germination Tolerance" has been applied between a given germination and the result of the germination test as follows:

Given Germination	*Allowable Variation* (%)
90 or over	6
80 or over, but less than 90	7
70 or over, but less than 80	8
60 or over, but less than 70	9
Less than 60	10

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test
	ALFALFA							
	W. F. COBB CO., Franklin, Mass.							
192	Grimm Alfalfa	L.	99.74	.10	.16	—	76-12	10/1936
	W. F. Cobb Co., Franklin	F.	99.52	.07	.28	.06	89-5	7/1937
	ALBERT DICKINSON CO., Chicago, Ill.							
108	Alfalfa, Lot No. 28184	L.	99.32	.42	—	—	78-15	5/1933
	O. B. Parks & Co., Westfield	F.	99.36	.41	.03	.20	72-4	7/1937
317	Grimm Alfalfa, Lot No. 27927	L.	99.72	.06	—	—	80-11	11/1936
	Farm Service Stores, Fitchburg	F.	99.74	.00	.00	.26	90-4	7/1937
	EASTERN STATES FARMERS' EXCHANGE, West Springfield, Mass.							
95	Grimm Alfalfa	L.	99.35	.20	.40	.05	75-20	12/1936
	Eastern States Farmers' Exchange, West Springfield	F.	99.56	.15	.11	.18	95-5	7/1937
	THOMAS W. EMERSON CO., Boston, Mass.							
6	Grimm Alfalfa, Lot No. 60	L.	99.50	*	—	—	80	1/1937
	J. W. Parsons & Son, Northampton	F.	99.33	.22	.25	.20	86-11	6/1937
39	North Western Alfalfa	L.	99.38	*	—	—	74	7/1936
	Prentiss, Brooks & Co., Holyoke	F.	99.12	.19	.32	.37	84-7	6/1937
	FITCHBURG HARDWARE CO., Fitchburg, Mass.							
131	Grimm Alfalfa	L.	*	*	—	—	*	*
	Fitchburg Hardware Co., Fitchburg	F.	99.66	.11	.18	.05	84-0	7/1937
	ROSS BROS. CO., Worcester, Mass.							
406	Grimm Alfalfa	L.	99.05	.02	—	—	93	1/1937
	Ross Bros. Co., Worcester	F.	99.18	.04	.09	.69	70-20	7/1937
	STANFORD SEED CO., INC., Buffalo, N. Y.							
15	Grimm Alfalfa	L.	99.74	.10	—	—	78-15	3/1937
	W. N. Potter & Sons, Northampton	F.	99.57	.21	.10	.12	72-25	6/1937
	WHITNEY-ECKSTEIN SEED CO., Buffalo, N. Y.							
580	Grimm Alfalfa	L.	99.50	.17	—	—	90	1/1937
	Farm Service Stores, Newburyport	F.	99.31	.34	.35	.00	92-4	7/1937

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test
	BARLEY							
	JOSEPH BRECK & SONS CORP., Boston, Mass.							
471	Velvet	L.	99.00	.02	.19	.79	98	1/1937
	Joseph Breck & Sons Corp., Boston	F.	98.66	.00	.25	1.09	99	7/1937
472	White Hulless	L.	99.26	.74	—	—	87	1/1937
	Joseph Breck & Sons Corp., Boston	F.	99.29	—	.49	.22	85-0	7/1937
473	Two Rowed	L.	*	*	—	—	*	*
	Joseph Breck & Sons Corp., Boston	F.	99.59	.03	.10	.28	94-0	7/1937
	BENT GRASS							
	EASTERN STATES FARMERS' EXCHANGE, West Springfield Mass.							
100	R. I. Colonial	L.	98.00	.05	1.95	—	90	12/1936
	Eastern States Farmers' Exchange, West Springfield	F.	98.92	.02	1.06	—	95	7/1937
	E. W. McMINDES, INC., Astoria, Oreg.							
86	Astoria, Lot No. 52899	L.	98.10	.10	1.80	—	*	9/1936
	H. C. Puffer Co., Springfield	F.	97.82	.04	2.14	—	93	6/1937
	ROSS BROS. CO., Worcester, Mass.							
410	Astoria Bent	L.	98.55	.05	—	—	90	1/1937
	Ross Bros. Co., Worcester	F.	98.72	.08	1.20	—	94	7/1937
	BLUEGRASS							
	JOSEPH BRECK & SONS CORP., Boston, Mass.							
343	Kentucky Bluegrass	L.	84.00	*	—	—	81	*
	Skelton Hardware Co., Newton Center	F.	88.59	.23	11.06	.12	69	7/1937
453	Kentucky Bluegrass	L.	*	*	—	—	*	*
	Whitmore's Hardware Co., Melrose	F.	81.71	.10	18.09	.10	83	7/1937
	CRAVER-DICKINSON SEED CO. Buffalo, N. Y.							
88	Kentucky Bluegrass, Lot No. (32-115)	L.	88.00	.20	—	—	80	12/1936
	H. C. Puffer Co., Springfield	F.	87.35	.22	12.39	.04	78	7/1937
	THOMAS W. EMERSON CO., Boston, Mass.							
633	Kentucky Bluegrass	L.	83.70	.30	—	—	80	8/1936
	Waters & Brown Hardware Co., Salem	F.	82.58	.87	15.01	1.54	77	7/1937

	FITCHBURG HARDWARE CO., Fitchburg, Mass.							
132	Kentucky Bluegrass	L.	*	*	—	—	*	*
	Fitchburg Hardware Co., Fitchburg	F.	76.04	.52	23.39	.05	71	7/1937
	ROSS BROS. CO., Worcester, Mass.							
408	Kentucky Bluegrass	L.	90.30	.18	—	—	87	2/1937
	Ross Bros. Co., Worcester	F.	90.05	.11	9.50	.34	83	7/1937
	WHITNEY-ECKSTEIN SEED CO., Buffalo, N. Y.							
144	Kentucky Bluegrass, Lot No. 3628	L.	85.00	.73	—	—	80	1/1937
	Davis Hardware Co., Gardner	F.	82.61	.74	16.34	.31	94	7/1937
	BUCKWHEAT							
	W. F. COBB CO., Franklin, Mass.							
194	Buckwheat, Japanese	L.	99.75	.25	—	—	98	11/1936
	W. F. Cobb Co., Franklin	F.	99.91	—	—	—	98	7/1937
	EASTERN STATES FARMERS' EXCHANGE, West Springfield, Mass.							
97	Buckwheat	L.	99.00	.10	.50	.40	85	1/1936
	Eastern States Farmers' Exchange, West Springfield	F.	99.60	.01	.21	.18	85	7/1937
	ROSS BROS. CO., Worcester, Mass.							
399	Buckwheat, Japanese	L.	99.75	*	—	—	98	8/1936
	Seder Grain Co., Webster	F.	99.70	.01	.28	.01	95	7/1937
	ALSIKE CLOVER							
	W. F. COBB CO., Franklin, Mass.							
191	Alsike	L.	98.25	.55	.55	—	92	11/1936
	W. F. Cobb Co., Franklin	F.	98.31	.86	.16	.67	78-16	7/1937
	ALBERT DICKINSON CO., Chicago, Ill.							
33	Alsike	L.	98.15	*	—	—	88-8	*
	Prentiss, Brooks & Co., Holyoke	F.	98.53	.19	.38	.90	64-10	6/1937
	THOMAS W. EMERSON CO., Boston, Mass.							
1	Alsike (Lot No. 61)	L.	99.18	*	—	—	78	1/1937
	J. W. Parsons & Son, Northampton	F.	99.39	.33	.19	.09	83-12	7/1937
223	Alsike	L.	99.00	.17	—	—	95	1/1937
	Taft Bros., Uxbridge	F.	96.68	.66	.09	2.57	93-6	7/1937
	ROSS BROS. CO., Worcester, Mass.							
405	Alsike	L.	99.11	.07	—	—	91	1/1937
	Ross Bros. Co., Worcester,	F.	97.86	.03	1.58	.53	65-33	7/1937
	STANFORD SEED CO., INC., Buffalo, N. Y.							
13	Alsike, Lot No. 6300	L.	98.64	.63	—	—	86-6	1/1937
	W. N. Potter & Sons, Northampton	F.	98.45	.83	.32	.40	93-7	6/1937

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed. Dealer and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test
	ALSIKE CLOVER — Concluded							
	WHITNEY-ECKSTEIN SEED CO., Buffalo, N. Y.							
373	Alsike (2)	L.	98.05	.43	—	—	78-10	2/1933
	Oxford Grain Co., Oxford	F.	98.35	.43	.61	.61	65-5	7/1937
795	Alsike	L.	*	*	—	—	*	*
	Stone Hardware Co., Brockton	F.	88.23	1.26	7.70	2.81	75-19	7/1937
	(†) **RED CLOVER**							
	JOSEPH BRECK & SONS CORP., Boston, Mass.							
460	Red Clover (E)	L.	99.50	*	—	—	96	*/1937
	Joseph Breck & Sons Corp., Boston	F.	99.61	.06	.13	.20	87-10	7/1937
	Medium Red Clover (E)	L.	*	*	—	—	*	*
831	H. V. Lawrence, Falmouth.	F.	99.44	.23	.16	.17	87-12	7/1937
	W. F. COBB CO., Franklin Mass.							
189	Medium Red Clover (E)	L.	99.60	.12	.16	—	82-13	11/1936
	W. F. Cobb Co., Franklin	F.	99.53	.20	.23	.04	88-5	7/1937
	ARTHUR R. CONE, Buffalo, N. Y.							
74	Medium Red Clover, Lot No. 15-130. (E)	L.	99.39	.05	—	—	87-7	3/1937
	George Methe Co., Springfield	F.	99.15	.10	.25	.50	85-12	6/1937
	THOMAS W. EMERSON CO., Boston, Mass.							
9	Polish Red Clover, Lot No. 121 (E)	L.	98.85	*	—	—	93	3/1937
	J. W. Parsons & Son, Northampton	F.	99.03	.17	.60	.20	84-13	6/1937
38	Red Clover (E)	L.	98.85	*	—	—	93	1/1937
	Prentiss, Brooks & Co., Holyoke	F.	98.86	.45	.48	.20	84-9	6/1937
221	Red Clover (E)	L.	99.00	*	—	—	95	1/1937
	Taft Bros., Uxbridge	F.	99.15	.32	.44	.09	85-11	7/1937
	ROSS BROS. CO., Worcester, Mass.							
404	Medium Red Clover (c)	L.	99.25	.10	—	—	93	1/1937
	Ross Bros. Co., Worcester	F.	99.20	.05	.35	.40	95-2	7/1937
	WM. G. SCARLETT & CO., Baltimore, Md.							
380	European Red Clover, Lot No. 2842 (E)	L.	99.00	.40	—	.30	80-5	4/1937
	Webster Grain Co., Webster	F.	99.29	.23	.25	.23	86-8	7/1937

	STANFORD SEED CO., INC., Buffalo, N. Y.							
22	Red Clover, Lot No. 6359	L.	99.00	.44	—	—	85–7	3/1937
	W. N. Potter Grain Co., Northampton	F.	98.89	.42	.23	.46	81–15	6/1937
104	Red Clover, Lot No. 6316 (c)	L.	98.50	.30	—	—	82–9	1/1937
	Great River Milling Co., Westfield	F.	97.04	.32	.82	1.82	96–3	7/1937
598	Red Clover, Lot No. 5842	L.	99.07	.40	—	—	84–8	2/1936
	Ellison Coal & Grain Co., Haverhill	F.	99.21	.54	.07	.18	88–5	7/1937
824	Red Clover, Lot No. 5336	L.	99.00	.30	—	—	85–7	2/1937
	Hamilton Hardware Co., Clinton	F.	98.89	.33	.50	.28	61–9	8/1937
	WHITNEY-ECKSTEIN SEED CO., Buffalo, N. Y.							
20	Imported Medium Red Clover, Lot No. 5727 (E)	L.	99.22	.08	—	—	90	3/1937
	Foster-Farrar Co., Northampton	F.	99.44	.14	.12	.28	94–4	7/1937
323	Red Clover, Lot No. W. E. 5674	L.	99.00	.53	—	—	78–12	2/1937
	H. K. Webster Co., Lawrence	F.	99.30	.24	.14	.32	78–19	7/1937
372	Medium Red Clover	L.	99.30	.35	—	—	90	8/1935
	Oxford Grain Co., Oxford	F.	99.22	.22	.29	.27	89–5	7/1937
847	Red Clover, Lot No. 5710	L.	99.00	.15	—	—	92	1/1937
	Eastern Grain Co., Bridgewater	F.	99.07	.19	.22	.52	89–5	7/1937
859	Red Clover, Lot No. 352	L.	99.50	.20	—	.20	90	4/1936
	A. E. Wardell, New Bedford	F.	99.78	.08	.12	.02	91–2	7/1937
	CRIMSON CLOVER							
	W. F. COBB CO., Franklin, Mass.							
188	Crimson Clover	L.	97.25	1.40	1.35	—	85	11/1936
	W. F. Cobb Co., Franklin	F.	98.05	.81	1.14	—	89–1	7/1937
	SWEET CLOVER							
	JOSEPH BRECK & SONS CORP., Boston, Mass.							
470	White Blossom Sweet Clover	L.	99.75	.14	—	—	75–15	2/1937
	Joseph Breck & Sons Corp., Boston	F.	94.32W 5.18Y	.14	.28	.08	72–15W 84–15Y	7/1937
	Total Melilotus Spp.		99.50					

(†) E — One percent of seed stained green, indicating Northern European origin.
C — One percent of seed stained violet, indicating Canadian origin.
All other samples of Red Clover in this table are of Domestic origin.

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test
	SWEET CLOVER — Concluded							
	EASTERN STATES FARMERS' EXCHANGE, West Springfield, Mass.							
99	White Blossom Sweet Clover	L.	97.00	.25	.45	2.30	74–11	12/1936
	Eastern States Farmers' Exchange, West Springfield, Mass.	F.	99.15	.06	.40	.39	79–9	7/1937
	STANFORD SEED CO., INC., Buffalo, N. Y.							
363	White Blossom Sweet Clover	L.	*	*	—	—	*	*
	Ware Grain & Coal Co., Ware	F.	97.86W 1.65Y	.04	.31	.14	42–0	7/1937
	Total Melilotus Spp.		99.51					
	WHITE CLOVER							
	JOSEPH BRECK & SONS CORP., Boston, Mass.							
468	White Clover	L.	98.	*	—	—	90	*/1937
	Joseph Breck & Sons Corp., Boston	F.	97.16	.45	.53	1.86	85–4	7/1937
	FITCHBURG HARDWARE CO., Fitchburg, Mass.							
133	White Clover	L.	*	*	—	—	*	*
	Fitchburg Hardware Co., Fitchburg	F.	97.51	1.01	.48	1.00	75–12	7/1937
	WM. G. SCARLETT & CO., Baltimore, Md.							
83	White Clover, Lot No. 478	L.	98.00	.50	—	1.25	76–6	11/1936
	H. C. Puffer Co., Springfield	F.	96.81	.49	.44	2.26	78–8	7/1937
	STANFORD SEED CO., INC., Buffalo, N. Y.							
73	White Clover, Lot No. 2710	L.	98.78	.40	—	—	82–10	*
	George Methe Co., Springfield	F.	98.56	.45	.95	.04	86–9	6/1937
	JOHN VARICK SEED CO., Manchester, N. H.							
384	White Clover, Fancy	L.	*	*	—	—	*	*
	L. L. Peavy Hardware Co., Newburyport	F.	98.76	.48	.33	.43	81–7	7/1937
	WHITNEY-ECKSTEIN SEED CO., Buffalo, N. Y.							
143	White Clover	L.	98.75	.43	—	—	80–12	8/1935
	Davis Hardware Co., Gardner	F.	98.32	.45	.33	.90	81–8	7/1937
797	White Clover	L.	97.60	.35	—	—	85–5	*
	Stone Hardware Co., Brockton	F.	97.88	.43	.91	.78	61–17	7/1937

848	White Dutch Clover	L.	*	*	—	—	*	*
	H. V. Lawrence, Falmouth	F.	98.48	.35	.35	.82	85–7	7 1937

CORN

	PAGE SEED CO., Greene, N. Y.							
401	Longfellow's Flint	L.	*	—	—	—	*	*
	Seder Grain Co., Webster	F.	97.80	—	2.20	—	92	7 1937
	ROSS BROS. CO., Worcester, Mass.							
377	Eureka	L.	99.00	—	—	—	94	3 1937
	Webster Grain Co., Webster	F.	99.90	—	.10	—	95	7 1937
378	Canada	L.	99.00	—	—	—	96	3 1937
	Webster Grain Co., Webster	F.	99.60	—	.20	—	97	7 1937
407	Worcester County Sweepstakes (Broad Grain)	L.	99.80	—	.20	—	93	4 1937
	Ross Bros. Co., Worcester	F.	99.90	—	.10	—	90	7 1937
411	Leaming	L.	99.00	—	—	—	98	1 1937
	Ross Bros. Co., Worcester	F.	99.30	—	.70	—	92	7 1937
590	Leaming	L.	99.00	—	—	—	94	3 1937
	Herman F. Davis, Merrimac	F.	99.00	—	1.00	—	89	7 1937
	WM. G. SCARLETT & CO., Baltimore, Md.							
379	Red Sweepstakes	L.	98.00	.20	—	—	90	2 1937
	Webster Grain Co., Webster	F.	99.50	—	.20	.30	86	7 1937
	STANFORD SEED CO., INC., Buffalo, N. Y.							
101	Imp. Leaming Corn, Lot No. 1296	L.	98.00	—	—	—	90	3 1937
	Great River Milling Co., Westfield	F.	99.90	—	.10	—	91	7 1937
102	8 Row Flint, Lot No. 1200	L.	98.00	—	—	—	90	*
	Great River Milling Co., Westfield	F.	99.40	—	.30	.30	98	7 1937
576	Imp. Leaming Corn, Lot No. 1303	L.	98.00	—	—	—	90	* 1937
	W. E. Atkinson Co., Newburyport	F.	99.90	—	.10	—	84	7 1937
	WHITNEY-ECKSTEIN SEED CO., Buffalo, N. Y.							
328	Virginia Eureka	L.	99.00	—	—	—	90	3 1937
	H. K. Webster Co., Lawrence	F.	99.20	—	.80	—	93	7 1937
	S. D. WOODRUFF & SONS, Orange, Conn.							
42	Selected Beauty Silo	L.	99.00	—	—	—	90	1 1937
	Prentiss, Brooks & Co., Holyoke	F.	99.90	—	.10	—	95	6 1937

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test
	FESCUES							
452	JOSEPH BRECK & SONS CORP., Boston, Mass. New Zealand Whitmore Hardware Co., Melrose	L.	98.00	*	—	—	90	3/1937
		F.	99.13	.11	.27	.49	72	7/1937
84	ALBERT DICKINSON CO., Chicago, Ill. Chewing's, Lot No. 034264 H. C. Puffer Co., Springfield	L.	98.85	.10	.55	.50	81	2/1937
		F.	98.80	.22	.70	.28	55	7/1937
142	WHITNEY-ECKSTEIN SEED CO., Buffalo, N. Y. Chewing's, Lot No. 2531 Davis Hardware Co., Gardner	L.	98.27	.43	—	—	88	1/1937
		F.	98.24	.15	.80	.81	69	7/1937
	MANGELS							
299	THOMAS W. EMERSON CO., Boston, Mass. M. L. Red Cover & Palm Co., Grain, Lowell	L.	98.00	*	—	—	90	*/1937
		F.	98.92	.03	1.05	—	93	7/1937
155	CHARLES C. HART SEED CO., Wethersfield, Conn. Golden Tankard C. F. Page & Co., Athol	L.	*	*	—	—	*	*
		F.	99.49	.01	.50	—	65	7/1937
419	Mangel Beets Waite Hardware Co., Worcester	L.	*	—	—	—	*	*
		F.	99.58	—	.42	—	72	7/1937
850	Mangel Beets Saunders Hardware & Paint Co., Middleboro	L.	*	*	—	—	*	*
		F.	99.73	.02	.25	—	94	7/1937
179	LEONARD SEED CO., Chicago, Ill. Mangel Wurzel Beet Kingman Hardware Co., Franklin	L.	*	*	—	—	*	*
		F.	99.44	.09	.47	—	64	7/1937
45	JEROME B. RICE SEED CO., Cambridge, N. Y. Giant Long Red Wells Hardware Co., Holyoke	L.	*	—	—	—	79	*
		F.	99.60	—	.40	—	88	6/1937
	GOLDEN MILLET							
463	JOSEPH BRECK & SONS CORP., Boston, Mass. Golden Millet Joseph Breck & Sons Corp., Boston	L.	99.55	.06	—	—	90	11/1936
		F.	99.51	.04	.32	.13	96	7/1937

HUNGARIAN MILLET

	JOSEPH BRECK & SONS CORP., Boston, Mass.							
461	Hungarian Millet, Lot No. 3955	L.	99.32	.40	—	—	90	11/1936
	Joseph Breck & Sons Corp., Boston	F.	99.06	.66	.26	.02	91	7/1937
	W. F. COBB CO., Franklin, Mass.							
187	Hungarian Millet	L.	99.34	44	.22	—	78	11/1936
	W. F. Cobb Co., Franklin	F.	99.21	.33	.30	.16	88	7/1937
	ALBERT DICKINSON CO., Chicago, Ill.	L.	98.60	1.14	—	—	90	11/1936
124	Hungarian Millet, Lot No. 8333							
	Farm Service Stores, Fitchburg	F.	98.97	.58	.32	.13	84	7/1937
	EASTERN STATES FARMERS' EXCHANGE, West Springfield, Mass.							
93	Hungarian Millet	L.	98.60	.75	.50	.15	80	12/1936
	Eastern States Farmers' Exchange, West Springfield	F.	98.78	.68	.47	.07	77	6/1937
	THOMAS W. EMERSON CO., Boston, Mass.							
830	Hungarian Millet	L.	99.00	.78	—	—	*	10/1936
	Hamilton Hardware Co., Clinton	F.	99.17	.46	.35	.02	94	7/1937
	WM. G. SCARLETT & CO., Baltimore, Md.							
853	Hungarian Millet, Lot No. 7287	L.	98.00	.50	—	—	85	5/1937
	A. E. Wardell, New Bedford	F.	98.62	.39	.99	.00	93	7/1937
	WHITNEY-ECKSTEIN SEED CO., Buffalo, N. Y.							
37	Hungarian Millet	L.	99.00	.51	—	—	90	5/1935
	Prentiss, Brooks & Co., Holyoke	F.	99.31	.54	.13	.02	72	7/1937

JAPANESE MILLET

	JOSEPH BRECK & SONS CORP., Boston, Mass.							
462	Japanese Millet	L.	97.50	1.80	—	—	90	1/1937
	Joseph Breck & Sons Corp., Boston	F.	96.95	2.77	.27	.01	86	7/1937
836	Japanese Millet	L.	*	*	—	—	*	*
	H. V. Lawrence, Falmouth	F.	97.49	2.38	.13	—	86	7/1937
	W. F. COBB CO., Franklin, Mass.							
316	Japanese Millet	L.	98.74	.90	.36	—	88	*
	W. F. Cobb Co., Franklin	F.	98.39	1.08	.39	.14	97	7/1937
	ALBERT DICKINSON CO., Chicago, Ill.							
87	Japanese Millet, Lot No. 81186	L.	98.00	1.70	—	—	80	11/1936
	H. C. Puffer Co., Springfield	F.	97.35	2.61	.04	—	92	6/1937

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test
	JAPANESE MILLET — Concluded							
	THOMAS W. EMERSON CO., Boston, Mass.	L.	97.00	*	—	—	90	1/1936
36	Japanese Millet	F.	98.98	.96	.06	—	89	6/1937
	Prentiss, Brooks & Co., Holyoke							
		L.	*	*	—	—	*	*
428	Japanese Millet	F.	93.96	2.83	2.37	.84	76	7/1937
	Lincoln Square Hardware Co., Worcester							
	PAGE SEED CO., Greene, N. Y.	L.	98.00	1.80	—	—	87	11/1936
400	Japanese Millet, Lot No. J5A37	F.	98.67	1.22	.11	—	92	7/1937
	Seder Grain Co., Webster							
	STANFORD SEED CO., INC., Buffalo, N. Y.	L.	98.00	1.49	—	—	85	3/1937
2	Japanese Millet, Lot No. 6394	F.	98.31	1.51	.18	—	88	6/1937
	W. N. Potter & Sons, Northampton							
		L.	98.00	1.04	—	—	85	3/1937
105	Japanese Millet, Lot No. 6394	F.	97.86	2.03	.10	—	86	7/1937
	Great River Milling Co., Westfield							
		L.	98.03	1.55	—	—	94	2/1936
361	Japanese Millet	F.	97.34	2.40	.26	—	91	7/1937
	Ware Grain & Coal Co., Ware							
	WHITNEY-ECKSTEIN SEED CO., Buffalo, N. Y.	L.	98.09	1.55	—	—	90	1/1936
147	Japanese Millet	F.	96.96	2.96	.06	.02	92	7/1937
	Davis Hardware Co., Gardner							
		L.	98.00	.78	—	—	92	2/1937
846	Japanese Millet, Lot No. 9030	F.	98.34	1.57	.09	—	87	7/1937
	Eastern Grain Co., Bridgewater							
	WHITE WONDER MILLET							
	WM. G. SCARLETT & CO., Baltimore, Md.	L.	98.00	.80	—	—	90	1/1937
197	White Wonder Millet	F.	98.84	.27	.59	.30	95	7/1937
	M. J. Van Leeuan, The Continental Nurseries, Franklin							
	OATS							
	W. F. COBB CO., Franklin, Mass.	L.	99.14	.04	.54	—	90	12/1936
193	Victor Oats	F.	99.24	.05	.42	.28	99	7/1937
	W. F. Cobb Co., Franklin							

	ROSS BROS. CO., Worcester, Mass.							
412	Swedish Oats	L.	98.14	*	—	—	94	3/1937
	Ross Bros. Co., Worcester	F.	98.40	.16	.36	1.08	95	7/1937
	SUN-FIELD SEED SERVICE, Chicago, Ill.							
227	Royal Banner	L.	*	*	—	—	*	*
	Taft Bros., Uxbridge	F.	99.77	.02	.10	.11	99	7/1937
	WARE GRAIN & COAL CO., Ware, Mass.							
365	Seed Oats	L.	98.00	*	—	—	95	*
	Ware Grain & Coal Co., Ware	F.	97.30	.01	.07	2.62	90	7/1937
	H. K. WEBSTER CO., Lawrence, Mass.							
325	Seed Oats	L.	98.00	*	—	—	95	*
	H. K. Webster Co., Lawrence	F.	98.55	.05	.14	1.26	92	7/1937
	WIRTHMORE GRAIN CO., St. Albans, Vt.							
4	Oats (6)	L.	98.00	.20	—	—	95	1/1937
	W. N. Potter & Sons, Northampton	F.	97.66	.05	.22	2.07	94	6/1937
	WISE GRAIN CO., Baltimore, Md.							
91	Swedish Oats	L.	98.00	—	—	—	95	3/1937
	H. C. Puffer Co., Springfield	F.	98.05	—	.37	1.55	92	6/1937
	WHITNEY-ECKSTEIN SEED CO., Buffalo, N. Y.							
717	Excelsior Oats	L.	*	*	—	—	*	*
	Pierce Hardware Co., Taunton	F.	97.47	.29	.62	1.62	82	7/1937
	ORCHARD GRASS							
	JOSEPH BRECK & SONS CORP., Boston, Mass.							
464	Orchard Grass	L.	90	—	—	—	80	*/1937
	Joseph Breck & Sons Corp., Boston	F.	90.50	—	9.44	.06	86	7/1937
	WHITNEY-ECKSTEIN SEED CO., Buffalo, N. Y.							
858	Orchard Grass, Lot No. 2544	L.	90.08	.05	—	—	90	3/1937
	A. E. Wardell, New Bedford	F.	88.47	.00	10.21	1.32	97	7/1937
	PEAS							
	JOSEPH BRECK & SONS CORP., Boston, Mass.							
469	Canada Field	L.	*	—	—	—	*	*
	Joseph Breck & Sons Corp., Boston	F.	99.35	—	.65	—	97	7/1937
	WM. G. SCARLETT & CO., Baltimore, Md.							
326	Canada Field, Lot No. 4659	L.	98.00	.05	—	—	90	3/1937
	H. K. Webster Co., Lawrence	F.	99.84	—	.16	—	94	7/1937

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test
	PEAS — Concluded							
381	Canada Field, Lot No. 4665	L.	98.00	.50	—	—	85	4/1937
	Webster Grain Co., Webster	F.	98.34	—	1.66	—	98	7/1937
	WHITNEY-ECKSTEIN SEED CO., Buffalo, N. Y.							
126	Fancy Canada Field	L.	98.00	—	—	—	90	1/1936
	Farm Service Stores, Fitchburg	F.	99.72	—	.28	—	98	7/1937
	RAPE							
	JOSEPH BRECK & SONS CORP., Boston, Mass.							
465	Dwarf Essex	L.	*	—	—	—	*	*
	Joseph Breck & Sons Corp., Boston	F.	99.26	—	.74	—	93	7/1937
841	Dwarf Essex	L.	98.00	—	—	—	98	*
	J. H. Fairbanks, Bridgewater	F.	99.22	—	.77	.01	90	7/1937
	COMSTOCK-FERRE CO., Wethersfield, Conn.							
21	Dwarf Essex, Lot No. 563	L.	99.00	.25	—	—	90	4/1937
	Foster-Farrar Co., Northampton	F.	99.78	.09	.12	.01	96	7/1937
	EASTERN STATES FARMERS' EXCHANGE, West Springfield, Mass.							
96	Dwarf Essex	L.	99.50	.05	.45	—	95	11/1936
	Eastern States Farmers' Exchange, West Springfield	F.	99.77	.19	.03	.01	97	7/1937
	THOMAS W. EMERSON CO., Boston, Mass.							
600	Dwarf Essex	L.	*	*	—	—	*	*
	Ellison Coal & Grain Co., Haverhill	F.	99.69	.05	.25	.01	95	7/1937
	REDTOP							
	W. F. COBB CO., Franklin, Mass.							
190	Redtop	L.	93.40	.40	6.00	—	92	11/1936
	W. F. Cobb Co., Franklin	F.	86.20	.13	12.33	1.34	94	7/1937
	CRAVER-DICKINSON SEED CO., Buffalo, N. Y.							
90	Fancy Redtop Lot No. 41-424	L.	91.90	.20	—	—	92	12/1936
	H. C. Puffer Co., Springfield	F.	90.57	.43	8.06	.94	89	7/1937

82	CRAVER-DICKINSON SEED CO., Buffalo, N. Y.							
	Common Redtop, Lot No. 42-269	L.	53.40	1.20	—	—	77	2/1937
	H. C. Puffer Co., Springfield	F.	53.78	1.06	43.63	1.53	86	6/1937
	ALBERT DICKINSON CO., Chicago, Ill.							
125	Redtop, Lot No. 41327	L.	92.30	.60	—	—	90	11/1936
	Farm Service Stores, Fitchburg	F.	92.26	.41	6.92	.41	94	7/1937
	DOUGHTEN SEED CO., Jersey City, N. J.							
40	Freedom Redtop, Lot No. 600 (R 367)	L.	92.10	.40	.30	—	90	12/1935
	Prentiss, Brooks & Co., Holyoke	F.	92.13	.64	7.02	.21	87	6/1937
	THOMAS W. EMERSON CO., Boston, Mass.							
7	Redtop	L.	92.00	*	—	—	90	3/1937
	J. W. Parsons & Son, Northampton	F.	90.58	.28	9.08	.06	94	7.1937
222	Redtop	L.	90.00	*	—	—	90	1/1937
	Taft Bros., Uxbridge	F.	90.09	.36	9.55	—	91	7/1937
631	Redtop	L.	95.00	.57	—	—	90	3/1937
	Waters & Brown Hardware Co., Salem	F.	89.75	.29	9.84	.12	96	7/1937
	ROSS BROS. CO., Worcester, Mass.							
374	Redtop	L.	91.25	.85	—	—	90	1/1936
	Oxford Grain Co., Oxford	F.	91.60	.54	7.72	.14	96	7/1937
409	Redtop	L.	98.40	.20	—	—	95	12/1936
	Ross Bros. Co., Worcester	F.	98.04	.39	1.57	—	97	7/1937
	STANFORD SEED CO., INC., Buffalo, N. Y.							
12	Redtop, Lot No. 3192	L.	92.63	.49	—	—	90	3/1937
	W. N. Potter & Son, Northampton	F.	92.08	.47	6.74	.71	96	6/1937
106	Redtop, Lot No. 3192	L.	92.63	.49	—	—	90	3/1937
	Great River Milling Co., Westfield	F.	92.63	.50	6.25	.62	92	7/1937
364	Redtop	L.	*	*	—	—	*	*
	Ware Grain & Coal Co., Ware	F.	89.38	.42	7.83	2.37	87	7 1937
	WHITNEY-ECKSTEIN SEED CO., Buffalo, N. Y.							
140	Pan American Redtop, Lot No. 4243	L.	92.25	.50	—	—	90	1 1937
	Davis Hardware Co., Gardner	F.	90.97	.49	8.54	—	98	7 1937
322	Redtop, Lot No. 4243	L.	92.25	.56	—	—	90	1/1937
	H. K. Webster Co., Lawrence	F.	92.25	.44	7.08	.23	94	7/1937
382	Redtop	L.	92.90	1.70	—	—	90	2 1933
	Webster Grain Co., Webster	F.	91.70	.60	7.70	—	91	7 1937

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed Dealer and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test
	REDTOP — Concluded							
671	Redtop, Lot No. 4219	L.	92.02	1.26	—	—	90	3/1936
	Hutchinson Hardware Co., Lynn	F.	92.31	1.29	6.40	—	89	7/1937
	ROUGH STALKED MEADOW GRASS							
	JOSEPH BRECK & SONS CORP., Boston, Mass.							
466	Rough Stalked Meadow Grass	L.	98.00	*	—	—	97	*-1937
	Joseph Breck & Sons Corp., Boston	F.	89.67	.26	10.07	—	91	7/1937
	WHITNEY-ECKSTEIN SEED CO., Buffalo, N. Y.							
845	Rough Stalked Meadow Grass	L.	*	*	—	—	*	*
	H. V. Lawrence, Falmouth	F.	93.62	.48	5.80	.10	94	7-1937
	RYE							
	JOSEPH BRECK & SONS CORP., Boston, Mass.							
844	Spring	L.	*	*	—	—	*	*
	H. V. Lawrence, Falmouth	F.	98.54	.02	.34	1.10	64	7/1937
	EASTERN STATES FARMERS' EXCHANGE, West Springfield, Mass.							
94	Spring	L.	98.00	.20	1.30	.50	80	12/1936
	Eastern States Farmers' Exchange, West Springfield	F.	98.49	.05	1.36	.10	84	6/1937
	RYEGRASS							
	JOSEPH BRECK & SONS CORP., Boston, Mass.							
467	Perennial	L.	*	*	—	—	*	*
	Joseph Breck & Sons Corp., Boston	F.	98.97	.11	.44	.48	95	7/1937
	ALBERT DICKINSON CO., Chicago, Ill.							
85	Domestic, Lot No. 38194	L.	99.56	.27	.07	.10	94	1/1937
	H. C. Puffer Co., Springfield	F.	99.49	.27	.16	.08	93	6/1937
	WHITNEY-ECKSTEIN SEED CO., Buffalo, N. Y.							
670	Ryegrass, Lot No. 2639 (6)	L.	99.60	.29	—	—	96	1/1936
	Hutchinson Hardware Co., Lynn	F.	99.32	.12	.56	—	98	7/1937
	F. H. WOODRUFF & SONS, Milford, Conn.							
823	Domestic	L.	99.58	.13	.29	—	91	*
	Town Square Hardware & Supply Co., Norwood	F.	98.66	.22	1.09	.03	94	7/1937

SOY BEANS

	EASTERN STATES FARMERS' EXCHANGE, West Springfield, Mass.								
92	Dunfield Soy Beans	L.	99.25	—	.70	.05	90	12	1936
	Eastern States Farmers Exchange, West Springfield	F.	98.96	—	.96	.08	96	7	1937
	THOMAS W. EMERSON CO., Boston, Mass.								
327	Manchu Soy Beans	L.	99.00	—	—	—	90	*	1937
	H. K. Webster Co., Lawrence	F.	99.80	—	.20	—	80	7	1937
597	Soy Beans (6)	L.	*	—	—	—	*	*	
	Ellison Coal & Grain Co., Haverhill	F.	99.60	—	.40	—	85	7	1937
	WHITNEY-ECKSTEIN SEED CO., Buffalo, N. Y.								
589	Black Wilson Soy Bean	L.	98.00	—	—	—	85	3	1935
	Herman F. Davis, Merrimac	F.	98.94	—	1.06	—	44	7	1937

SUDAN GRASS

	BARBER & BENNETT, Albany, N. Y.								
41	Sudan Grass, Lot No. 98-81	L.	97.72	.07	—	—	83	5	1936
	Prentiss, Brooks & Co., Holyoke	F.	98.89	.02	.52	.57	83	7	1937
	THOMAS W. EMERSON CO., Boston, Mass.								
599	Sudan Grass	L.	94.53	*	—	—	77	4	1937
	Ellison Coal & Grain Co., Haverhill	F.	95.61	.10	2.14	2.15	84	7	1937

SUNFLOWER

	JOSEPH BRECK & SONS CORP., Boston, Mass.								
777	Sunflower	L.	*	—	—	—	*	*	
	J. E. Jordan Co., Plymouth	F.	98.77	—	1.18	.05	99	7	1937
	JEROME B. RICE SEED CO., Cambridge, N. Y.								
737	Sunflower	L.	*	—	—	—	*	*	
	G. E. Doane Hardware Co., Middleboro	F.	98.35	—	1.65	—	90	7	1937

TIMOTHY

	W. F. COBB CO., Franklin, Mass.								
186	Timothy	L.	99.90	.05	—	.05	*	*	
	W. F. Cobb Co., Franklin	F.	99.88	.03	.06	.03	92	7	1937
	CRAVER-DICKINSON SEED CO., Buffalo, N. Y.								
89	Timothy, Lot No. 66-5138	L.	99.60	.05	—	—	93	3	1936
	H. C. Puffer Co., Springfield	F.	99.81	.03	.16	—	94	6	1937

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test
	TIMOTHY — Concluded							
	ALBERT DICKINSON CO., Chicago, Ill.							
592	Timothy	L.	*	*	—	—	*	*
	Herman F. Davis, Merrimac	F.	99.70	.09	.16	.05	93	7/1937
	THOMAS W. EMERSON CO., Boston, Mass.							
11	Timothy, Lot No. 122	L.	99.52	—	—	—	92	1/1937
	J. W. Parsons & Son, Northampton	F.	99.60	.00	.37	.03	95	6/1937
224	Timothy	L.	99.50	.05	—	—	92	1/1937
	Taft Bros., Uxbridge	F.	99.64	.04	.23	.09	94	7/1937
393	Timothy	L.	99.60	.12	—	—	94	1/1937
	Webster Grain Co., Webster	F.	99.57	.06	.34	.03	94	7/1937
	FITCHBURG HARDWARE CO., Fitchburg, Mass.							
134	Timothy	L.	*	*	—	—	*	*
	Fitchburg Hardware Co., Fitchburg	F.	99.62	.05	.19	.14	91	7/1937
	ROSS BROS. CO., Worcester, Mass.							
403	Worcester Timothy	L.	99.60	.05	—	—	93	1/1937
	Ross Bros. Co., Worcester	F.	99.55	.03	.30	.12	94	7/1937
	STANFORD SEED CO., INC. Buffalo, N. Y.							
8	Timothy, Lot No. 2927	L.	99.60	.05	—	—	93	1/1937
	W. N. Potter & Son, Northampton	F.	99.20	.08	.40	.32	95	6/1937
103	Timothy, Lot No. 6399	L.	99.60	.10	—	—	90	3/1937
	Great River Milling Co., Westfield	F.	99.51	.28	.19	.02	96	7/1937
362	Timothy, Lot No. 2368	L.	99.60	.05	—	—	94	3/1937
	Ware Coal & Grain Co., Ware	F.	99.67	.02	.28	.03	91	7/1937
	WHITNEY-ECKSTEIN SEED CO., Buffalo, N. Y.							
75	Pan American Timothy	L.	99.60	.05	—	—	90	1/1937
	George Methe Co., Springfield	F.	99.15	.14	.66	.05	94	6/1937
141	Pan American Timothy	L.	99.60	.05	—	—	90	8/1935
	Davis Hardware Co., Gardner	F.	99.58	.05	.34	.03	94	7/1937

321	Timothy	L.	99.60	.05	—	—	90	1/1937
	H. K. Webster Co., Lawrence	F.	99.44	.07	42	.07	91	7/1937
591	Timothy	L.	99.60	.07	—	—	94	10/1936
	Herman F. Davis, Merrimac	F.	99.52	.10	.33	.05	91	7/1937
715	Timothy	L.	*	*	—	—	*	*
	Pierce Hardware Co., Taunton	F.	99.66	.03	.28	.03	78	7/1937
	VETCH							
	EASTERN STATES FARMERS' EXCHANGE, West Springfield, Mass.							
98	Pearl Vetch	L.	99.00	.20	60	.20	85-5	12/1936
	Eastern States Farmers' Exchange, West Springfield	F.	99.53	.02	.18	.27	98-1	7/1937
	THOMAS W. EMERSON CO., Boston, Mass.							
398	Winter Vetch	L.	99.00	*	—	—	88	*/1937
	Seder Grain Co., Webster	F.	97.43	2.12	.23	.22	83-12	8/1937
	WM. G. SCARLETT & CO., Baltimore, Md.							
195	Spring Vetch	L.	*	*	—	—	*	*
	M. J. Van Leeman, The Continental Nurseries, Franklin	F.	98.57	.25	.54	.64	91-1	7/1937
	WHEAT							
	WM. G. SCARLETT & CO., Baltimore, Md.							
196	Wheat (6)	L.	*	—	—	—	*	*
	M. J. Van Leeman, The Continental Nurseries, Franklin	F.	99.73	—	.18	.09	94	7/1937

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Mixture, Dealer, Place Collected, Name and Percentage of Ingredients in Each Mixture		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %
	SPECIAL SEED MIXTURES					
	JOSEPH BRECK & SONS CORP., Boston, Mass.					
246	Shady Spot Lawn Mixture	L.	—	.80	15.00	—
	Kentucky Bluegrass, Redtop, Rough Stalked Meadow Grass, Chewing's Fescue & Bent (6)	F.	85.90	.50	13.30	.30
	H. L. Sawyer Co., Hardware, Framingham					
	Rough Stalked Meadow Grass	29.45%				
	Kentucky Bluegrass	25.55				
	Agrostis spp. (Redtop & Colonial Bent)	25.40				
	Chewing's Descue	5.50				
280	Setab Grass Mixture	L.	90.00	.85	9.15	—
	Redtop, Timothy, White Clover, Kentucky Bluegrass					
	Vanderhoff Hardware Co., Concord	F.	91.70	.70	7.40	.20
	Redtop	65.20%				
	Timothy	16.70				
	White Clover	5.70				
	Kentucky Bluegrass	4.10				
281	Boston Park Lawn Mixture	L.	91.00	.75	8.25	—
	Kentucky Bluegrass, Meadow Fescue, Redtop, Perennial Ryegrass, White Clover					
	Joseph Breck & Sons Corp., Boston	F.	92.40	.50	6.90	.20
	Red top	40.40%				
	Kentucky Bluegrass	38.00				
	Perennial Ryegrass	6.60				
	Meadow Fescue	5.10				
	White Clover (5)	2.30				
342	Shady Spot Lawn Grass Mixture	L.	80.00	*	15.00	—
	Kentucky Bluegrass, Redtop, Rough Stalked Meadow Grass, Chewing's Fescue & Bent (6)					
	Skelton Hardware Co., Newton Center	F.	82.87	.39	15.75	.99
	Agrostis spp (Redtop & Colonial Bent)	31.00%				
	Rough Stalked Meadow Grass	28.45				
	Kentucky Bluegrass	18.60				
	Chewing's Fescue	4.82				

776	Breck's Special Lawn Mixture	L.	90.00	.85	9.15	—
	Redtop, Timothy, White Clover, Kentucky Bluegrass					
	J. E. Jordan Co., Plymouth	F.	91.20	.55	8.15	.10
	Redtop	67.00%				
	Timothy	14.90				
	White Clover	5.00				
	Kentucky Bluegrass	4.82				
870	Lawn Grass Mixture	L.	90.00	.85	9.15	—
	Redtop, Timothy, White Clover, Kentucky Bluegrass					
	Dewolf & Vincent, New Bedford	F.	90.73	.68	8.49	.10
	Redtop	67.51%				
	Timothy	12.88				
	Kentucky Bluegrass	7.41				
	White Clover (5)	2.93				
875	Lawn Grass Mixture*	L.	93.00	*	*	—
	Felix Hardware Co., Clinton	F.	90.30	.30	8.30	1.10
	Domestic Ryegrass	55.10%				
	Timothy	21.30				
	Redtop	11.80				
	White Clover	2.10				
	COMSTOCK-FERRE CO., Wethersfield, Conn.					
17	Lawn Grass T. T. No. 4 (354)	L.	—	.26	5.26	—
	Kentucky Bluegrass 29.29%, Domestic Ryegrass 19.63%, Redtop 32.93%, Chewing's Fescue 8.78%, Astoria Bent 1.96%, Dutch White Clover 1.95%					
	Foster-Farrar Co., Northampton	F.	94.68	.10	5.22	.00
	Agrostis spp. (Redtop & Astoria Bent)	34.88%				
	Kentucky Bluegrass	31.01				
	Domestic Ryegrass	17.29				
	Chewing's Fescue	9.37				
	White Clover	2.13				
871	Lawn Grass Mixture	L.	—	.33	4.34	—
	Redtop 28.23, Kentucky Bluegrass 21.05, Domestic Ryegrass 29.44, Chewing's Fescue 7.81, White Dutch Clover 3.90, Astoria Bent 3.90					
	Harvey's Hardware Co., Falmouth	F.	95.68	.28	3.95	.09
	Agrostis spp. (Redtop & Colonial Bent)	40.40%				
	Domestic Ryegrass	21.00				
	Kentucky Bluegrass	19.59				
	Chewing's Fescue	7.82				
	White Clover	6.87				

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Mixture, Dealer, Place Collected, Name and Percentage of Ingredients in Each Mixture	Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %
	SPECIAL SEED MIXTURES — Continued				
	ALBERT DICKINSON CO., Chicago, Ill. L.		1.0	15.95	—
34	Evergreen Lawn Seed				
	Kentucky Bluegrass 26.25%, Redtop 32.00%, Domestic Ryegrass 19.08%, White Clover 5.00% F.	85.40	.30	14.00	.30
	Prentiss, Brooks & Co., Holyoke				
	Redtop 31.40%				
	Kentucky Bluegrass 27.60				
	Domestic Ryegrass 19.90				
	White Clover 6.50				
	L.		.80	10.20	—
35	Shady Spot Lawn Seed				
	Poa Trivialis 27.60%, Kentucky Bluegrass 32.00% Redtop 19.60%, Ryegrass 9.80% (6) F.	93.04	.29	6.67	.00
	Prentiss, Brooks & Co., Inc., Holyoke				
	Kentucky Bluegrass 32.39%				
	Redtop 30.82				
	Rough Stalked Meadow Grass 18.94				
	Domestic Ryegrass 10.89				
	DOUGHTEN SEED COMPANY, Jersey City, N. J. L.	80.00	1.00	17.90	1.10
498	Lawn Seed Mixture				
	Fancy Kentucky Bluegrass, Domestic Ryegrass, Redtop, Fancy White Clover F.	78.05	.67	19.65	1.63
	Phelan Hardware Co., Lee				
	Domestic Ryegrass 31.93%				
	Redtop 24.74				
	Kentucky Bluegrass 15.82				
	White Clover 5.56				
	THOMAS W. EMERSON CO., Boston, Mass. L.	—	.50	7.00	—
5	Gem Lawn Seed				
	Redtop, Kentucky Bluegrass, Chewing's Fescue, Astoria Bent F.	91.04	.30	8.47	.19
	J. W. Parsons & Son, Northampton				
	Agrostis spp. (Redtop & Colonial Bent) 61.57%				
	Kentucky Bluegrass 24.72				
	Chewing's Fescue 4.75				

429	Early Green Lawn Seed	L.	—	1.00	8.00	—
	Kentucky Bluegrass, Redtop, Timothy (4), Domestic Ryegrass, White Clover					
	Thomas W. Emerson Co., Boston	F.	93.20	.80	5.90	.10
	Redtop	39.60%				
	Domestic Ryegrass	36.60				
	Kentucky Bluegrass	12.10				
	White Clover	4.90				
477	Early Green Lawn Seed	L.	—	.50	7.4	—
	Redtop, Kentucky Bluegrass, Domestic Rye, White Dutch Clover					
	W. C. Ring, Palmer	F.	93.48	1.51	5.01	.00
	Redtop	47.12%				
	Domestic Ryegrass	27.82				
	Kentucky Bluegrass	13.43				
	White Clover	5.11				
747	Emerson's Special Mixed Lawn Seed	L.	—	*	*	—
	Redtop, Kentucky Bluegrass, Chewing's Red Fescue, Astoria Bent, White Clover					
	B. H. Dyer & Co., Hardware, Provincetown	F.	94.08	.17	5.12	.63
	Agrostis spp. (Redtop & Colonial Bent)	66.76%				
	Kentucky Bluegrass	15.55				
	Chewing's Fescue	7.82				
	White Clover	3.95				
872	Special Mixed Lawn Seed	L.	—	.	4.6	—
	Redtop, Kentucky Bluegrass, Chewing's Red Fescue, Astoria Bent, White Clover					
	Charles T. Eastman Hardware Co., Falmouth	F.	94.24	.29	4.80	.67
	Agrostis spp. (Redtop & Colonial Bent)	67.34%				
	Kentucky Bluegrass	15.37				
	Chewing's Fescue	7.21				
	White Clover	4.32				
	GARFIELD WILLIAMSON, INC., New York City					
494	Lawn Seed Mixture (Princeton)	L.	—	1.00	11.00	—
	Domestic Ryegrass, Timothy, Redtop, Kentucky Bluegrass					
	F. H. Turner & Co., Great Barrington	F.	91.45	.36	8.10	.09
	Domestic Ryegrass	28.69%				
	Timothy	25.14				
	Redtop	22.59				
	Kentucky Bluegrass	15.03				

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Mixture, Dealer, Place Collected, Name and Percentage of Ingredients in Each Mixture		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %
	SPECIAL SEED MIXTURES — Continued					
	CHARLES C. HART SEED CO., Wethersfield, Conn.	L.	82.38	.57	17.05	—
488	Evergreen Lawn Grass					
	Unhulled Redtop 23%, Domestic Rye Grass 25%, Fancy Redtop 15%, Timothy 25%, Kentucky Bluegrass 10%, White Clover 2%	F.	82.74	1.26	15.70	.30
	J. M. Van Deusen, Stockbridge	25.93%				
	Timothy	24.56				
	Domestic Ryegrass	22.42				
	Redtop	7.79				
	Kentucky Bluegrass	2.05				
	White Clover					
		L.	82.38	.57	17.05	—
553	Evergreen Lawn Grass					
	Unhulled Redtop 23%, Fancy Redtop 15%, Domestic Rye Grass 25%, Fancy Timothy 25%, Kentucky Bluegrass 10%, White Clover 2%	F.	83.00	.68	16.02	.30
	F. C. Sears & Co., South Deerfield	25.90%				
	Timothy	25.00				
	Domestic Ryegrass	21.40				
	Redtop	8.80				
	Kentucky Bluegrass	1.90				
	White Clover					
	JOHN D. LYONS CO., Belmont, Mass.	L.	—	1.	12.50	—
248	Boston Special Lawn Seed					
	Kentucky Bluegrass, Redtop, Timothy	F.	83.02	1.31	15.29	.38
	Van Duzen Hardware Co., Framingham	38.74%				
	Timothy	30.49				
	Redtop	13.79				
	Kentucky Bluegrass					
	OLIVER J. JOHNSON, Chicago, Ill.	L.	—	1.00	14.31	—
245	Boulevard Lawn Seed					
	Fancy Kentucky Bluegrass, Fancy Redtop, Fancy White Clover, Astoria Bent	F.	88.97	0.48	10.36	0.19
	H. L. Sawyer Co., Hardware, Framingham	53.40%				
	Kentucky Bluegrass	32.50				
	Agrostis spp. (Redtop & Colonial Bent)	3.07				
	White Clover (5)					

	PEDIGREED SEED CO., New York City					
806	Lawn Seed					
	Fancy Redtop, Fancy Kentucky Bluegrass, Chewing's New Zealand Fescue, White Clover	L.	—	1.00	9.19	—
	Kingston Hardware Co., Kingston					
	Redtop	F.	89.24	.83	9.00	.93
	Kentucky Bluegrass 42.34%					
	Chewing's Fescue 34.64					
	White Clover 7.15					
	5.11					
	ROSS BROS. CO., Worcester, Mass.					
413	Green Hill Lawn Seed					
	Redtop, Colonial Bent, Kentucky Bluegrass, Domestic Ryegrass	L.	—	.68	7.27	—
	Ross Bros. Co., Worcester					
	Agrostis spp. (Redtop & Colonial Bent) 45.40%	F.	93.00	.50	6.40	.10
	Kentucky Bluegrass 27.50					
	Domestic Ryegrass 20.10					
	JEROME B. RICE SEED CO., Cambridge, N. Y.					
474	Lawn Seed					
	Kentucky Bluegrass 42%, Redtop 42%, Domestic Ryegrass 13%, White Clover 3%	L.	—	*	*	—
	R. E. Faulkner, Palmer					
	Redtop 40.94%	F.	92.42	.48	6.52	.58
	Kentucky Bluegrass 27.13					
	Domestic Ryegrass 17.35					
	White Clover 7.00					
529	Lawn Seed (Rice's Best Mixed)					
	White Clover 4.85%, Redtop 27.00%, Domestic Ryegrass 14.80%, Kentucky Bluegrass 41.00%	L.	—	.83	11.62	—
	Clark Hardware Co., Greenfield					
	Redtop 35.02%	F.	86.31	.59	13.00	10
	Kentucky Bluegrass 34.03					
	Domestic Ryegrass 13.59					
	White Clover 3.67					
	O. M. SCOTT SEED CO., Marysville, Ohio					
66	Scott's Lawn Seed					
	Kentucky Bluegrass 58.10%, Redtop 24.45%, Poa trivialis 7.22%, Creeping Bent 7.35% (4)	L.	97.12	.09	2.79	—
	Carlisle Hardware Co., West Springfield					
	Kentucky Bluegrass Agrostis spp. 55.11%	F.	98.57	.10	1.24	.09
	(Redtop and Colonial Bent) (3) 36.51					
	Rough Stalked Meadow Grass 6.95					

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Mixture, Dealer, Place Collected, Name and Percentage of Ingredients in Each Mixture		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %
	SPECIAL SEED MIXTURES — Continued					
296	Scott's Lawn Seed	L.	97.12	.09	2.97	—
	Kentucky Bluegrass 58.10%, Redtop 24.45%, Poa trivialis 7.22%, Creeping Bent 7.35% (4)	F.	97.24	.10	2.56	.10
	Thompson's Hardware Co., Lowell	54.13%				
	Kentucky Bluegrass	34.85				
	Agrostis spp. (Redtop and Colonial Bent) (3)	8.26				
	Rough Stalked Meadow Grass					
	STANFORD SEED CO., INC., Buffalo, N. Y.					
3	Lawn Seed, Lot No. 5001	L.	—	*	15.53	—
	Kentucky Bluegrass, Redtop, Domestic Rye, Timothy, White Clover	F.	87.44	.87	11.50	.19
	W. N. Potter & Sons, Northampton	34.78%				
	Redtop	13.72				
	Timothy	10 05				
	Domestic Ryegrass	6.86				
	White Clover					
107	Lawn Mixture, Lot No. 5001	L.	—	1.00	15.63	—
	White Clover, Kentucky Bluegrass, Red top, Domestic Ryegrass, Timothy	F.	84.98	.68	13.95	.39
	O. B. Parks & Co., Westfield	25.54%				
	Redtop	17.76				
	Timothy	16.29				
	Domestic Ryegrass	13.66				
	Kentucky Bluegrass	6.35				
	White Clover	5.38				
	Orchard Grass (3)					
510	Lawn Mixture, Lot No. 5002	L.	—	1.00	15.10	—
	Fancy White Clover, Fancy Kentucky Bluegrass, Domestic Ryegrass, Redtop, Timothy	F.	85.77	.60	13.43	.20
	Crown Paint & Paper Co., Inc., North Adams	30.38%				
	Timothy	20.44				
	Redtop	20.05				
	Domestic Ryegrass	8.86				
	Kentucky Bluegrass	6.04				
	White Clover					

526	Lawn Mixture, Lot No. 5003	L.	—	1.00	18.00	—
	Fancy White Clover, Fancy Kentucky Bluegrass, Domestic Ryegrass, Fancy Redtop, Timothy					
	H. Newell & Co., Shelburne Falls	F.	77.10	.40	20.30	2.20
	Domestic Ryegrass	29.70%				
	Timothy	19.80				
	Redtop	14.90				
	Kentucky Bluegrass	7.40				
	White Clover	5.30				
	CHARLES WEILAND & CO., New York City					
873	Lawn Mixture	L.	—	1.50	*	—
	Timothy 6.30%, Redtop 3%, Domestic Ryegrass 65%, White Clover					
	Central Hardware Co., Norwood	F.	73.77	1.09	20.59	4.55
	Domestic Ryegrass	55.55%				
	Redtop	10.99				
	Timothy	6.14				
	White Clover (5)	1.09				
	WHITNEY-ECKSTEIN SEED CO., Buffalo, N. Y.					
70	Boston Special Lawn Seed	L.	—	1.00	12.50	.50
	Kentucky Bluegrass, Redtop, Timothy, Domestic Ryegrass, White Clover 3%					
	Carlisle Hardware Co., West Springfield	F.	85.72	.67	13.52	.09
	Redtop	28.19%				
	Domestic Ryegrass	20.29				
	Kentucky Bluegrass	16.95				
	Timothy	16.29				
	White Clover	4.00				
324	Lawn Seed	L.	—	.70	10.00	2.30
	Kentucky Bluegrass, New Zealand Chewing's Fescue, Fancy Redtop, Fancy White Clover					
	H. K. Webster Hardware Co., Lawrence	F.	87.95	.77	10.70	.58
	Redtop	51.10%				
	Kentucky Bluegrass	24.59				
	White Clover	8.39				
	Chewing's Fescue	3.87				
866	Quick Green Lawn Mixture	L.	—	2.00	18.00	2.00
	Redtop 9%, Timothy 29%, Domestic Ryegrass 39%, White Clover 1%					
	A. E. Wardell, New Bedford	F.	84.20	.84	13.75	1.21
	Domestic Ryegrass	36.64%				
	Timothy	34.30				
	Redtop	11.68				
	White Clover	1.58				
867	Excelsior Lawn Mixture	L.	—	.70	10.00	2.30
	Kentucky Bluegrass, New Zealand Chewing's Fescue, Fancy Redtop, Fancy White Clover					
	A. E. Wardell, New Bedford	F.	87.91	.59	10.62	.88
	Redtop	49.66%				
	Kentucky Bluegrass	26.65				
	White clover	7.67				
	Chewing's Fescue	3.93				

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Mixture, Dealer, Place Collected, Name and Percentage of Ingredients in Each Mixture		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %
	SPECIAL SEED MIXTURES — Continued					
	F. H. WOODRUFF & SONS, Milford, Conn.	L.	—	.80	8.50	—
14	Evergreen Lawn Mixture					
	Kentucky Bluegrass 16.50%, White Clover 2.50%, Chewing's Fescue 5.80%, Domestic Ryegrass 24%, Redtop 48.40%	F.	93.37	.52	5.80	.31
	Platt & Goslee, Great Barrington	46.08%				
	Redtop	22.46				
	Domestic Ryegrass	15.53				
	Kentucky Bluegrass	6.41				
	Chewing's Fescue	2.89				
	White Clover					
		L.	—	1.00	16.00	—
572	Lawn Mixture					
	Kentucky Bluegrass, Redtop, Timothy, Meadow Fescue (3), Domestic Ryegrass, White Clover	F.	89.01	1.00	9.17	.82
	M. W. Duggan Co., Newburyport	35.57%				
	Redtop	21.23				
	Domestic Ryegrass	18.42				
	Kentucky Bluegrass	7.53				
	Chewing's Fescue (3)	6.26				
	White Clover					
	S. D. WOODRUFF & SONS, Orange, Conn.	L.	—	.75	15.00	—
481	Lawn Mixture					
	Timothy 30%, Ryegrass 25%, Kentucky Bluegrass 12%, Redtop 18%	F.	88.16	.29	11.06	.49
	C. F. Glennan, Dalton	37.63%				
	Timothy	22.79				
	Domestic Ryegrass	13.97				
	Redtop	13.97				
	Kentucky Bluegrass					

GERMINATION OF SEEDS CONTAINED IN SPECIAL SEED MIXTURES

Number Tested	Name of Seed	GERMINATION, PERCENT Lowest	Highest	Average
30	Kentucky Bluegrass	19	86	67.55
16	Timothy	61	97	81.87
29	White Clover	37.17	90	77.73
			Hard seed 9.6	
12	Chewing's Fescue	1	86	51.08
5	Rough Stalked Meadow Grass	24	93	76.
30	Redtop	51	89	73.16
23	Domestic Ryegrass	74	99	96.86
1	Meadow Fescue	—	93	—
1	Orchard Grass	—	87	—
1	Perennial Ryegrass	—	82	—
9	Agrostis spp. Redtop & Colonial Bent	78	95	88.11

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1937 Month of Test
	ASPARAGUS		
258	NORTHRUP, KING & CO., Minneapolis, Minn. Washington (Rust Resistant) Robinson Hardware Co., Hudson	69	July
	BEANS		
	BARTLETT & DOW CO., Lowell, Mass.		
287	Pencil Pod Black Wax Bartlett & Dow Co., Lowell	91	May
	JOSEPH BRECK & SONS CORP., Boston, Mass.		
184	Long Yellow Six Weeks Bush Geb Hardware Co., Franklin	98	May
331	Scarlet Runner Henry Duncan Hardware, Inc., Reading	84	June
740	Golden Wax S. C. M Packard & Co., Hardware, Wareham	93	June
741	Pole Lima S. C. M. Packard & Co., Hardware, Wareham	94	June
770	Kentucky Wonder J. E. Jordan Hardware Co., Plymouth	97	June
771	Improved Golden Wax J. E. Jordan Hardware Co., Plymouth	92	June
786	Golden Wax Sweetser's General Store, Duxbury	89	June
802	Kentucky Wonder Brockton Hardware Co., Brockton	97	June
811	Stringless Green Pod Felix Hardware Co., Clinton	81	July
815	Pole A. F. Chase Corporation, Dedham	89	July
817	Improved Black Wax E. J. Keelan, Dedham	93	July
	COMSTOCK-FERRE CO., Wethersfield, Conn.		
16	Mammoth Pole Horticultural Foster-Farrar Co., Northampton	78	May
531	Pencil Pod Black Wax L. S. Field, Montague	96	July
695	Burpee's Stringless Green Pod Johnson's Hardware Co., Wrentham	95	June
	THOMAS W. EMERSON CO., Boston, Mass.		
175	Goddard Bush F. A. Gould Hardware Co., Milford	98	May
231	Pencil Pod Adams Hardware Co., Northboro	97	May
266	Bountiful Farm Service Stores, Hudson	82	June
350	Burpee Bush Lima Lockheart Hardware Co., Natick	89	June
351	Burpee's Stringless Green Pod Lockheart Hardware Co., Natick	93	June
427	Kentucky Wonder Wax Lincoln Square Hardware Co., Worcester	95	June
	THOMAS W. EMERSON CO., Boston, Mass.		
430	Burpee Bush Lima Lincoln Square Hardware Co., Worcester	90	June

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1937 Month of Test
	BEANS — Continued		
475	Improved Golden Wax W. C. Ring, Palmer	100	June
602	German Black Wax L. E. Smith Co., Hardware, Gloucester	98	June
603	Horticultural Pole L. E. Smith Co., Hardware, Gloucester	89	June
700	Long Yellow Six Weeks' J. W. Gove Hardware, Inc., Foxboro	100	June
707	Pencil Pod W. C. Fuller Co., Mansfield	90	June
708	Burpee's Bush Lima W. C. Fuller Co., Mansfield	94	June
724	Bountiful Cobb, Bates & Yerxa, Taunton	93	June
748	Bountiful B. H. Dyer Hardware Co., Provincetown	90	June
749	Low's Champion B. H. Dyer Hardware Co., Provincetown	95	June
828	Bountiful Norwood Hardware & Supply Co., Norwood	94	July
839	Long Yellow Six Weeks' Charles T. Eastman, Falmouth	91	July
	FERRY-MORSE SEED CO., Detroit, Mich.		
54	Golden Wax Carlisle Hardware Co., West Springfield	92	May
55	Fordhook Lima Carlisle Hardware Co., West Springfield	72	May
825	Webber Wax Sears Roebuck Co., Norwood	98	July
	J. J. H. GREGORY & SON, Marblehead, Mass.		
662	Bountiful J. J. H. Gregory & Son, Marblehead	82	June
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
76	Improved Golden Wax George Methe Co., Springfield	91	May
115	Dwarf Horticultural Leominster Hardware Co., Leominster	75	May
116	Kentucky Wonder Wax Leominster Hardware Co., Leominster	97	May
158	Stringless Green Pod C. T. Price & Co., Athol	97	June
416	Red Kidney Waite Hardware Co., Worcester	95	June
833	Longfellow Yellow H. A. Speare & Son, Inc., Walpole	94	July
851	Sure Crop Wax Saunders Hardware & Paint Co., Middleboro	99	July
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
307	Burpee's Stringless Green Pod Centralville Hardware Co., Lowell	28	May
383	Red Valentine J. W. Carter Hardware Co., Manchester	53	June
757	Burpee's Green Pod G. W. Cooper, Plymouth	40	June

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1937 Month of Test
	BEANS — Continued		
769	Golden Wax Bliss Hardware Co., Plymouth	68	June
	LANDRETH SEED CO., Bristol, Pa.		
423	Webber Wax Elwood Adams Hardware Co., Worcester	75	June
	LEONARD SEED CO., Chicago, Ill.		
315	Black Wax A. C. Stewart Estate, Athol	96	May
582	Dwarf Green Pod F. B. Keene, Amesbury	64	June
583	Dwarf Horticultural F. B. Keene, Amesbury	96	June
626	Dwarf Yellow Pod Winer Bros., Beverly	88	June
856	Burpee's Brittle Wax A. E. Wardell, New Bedford	88	July
	NORTHRUP, KING & CO., Minneapolis, Minn.		
530	Kentucky Wonder Pole W. E. Aubuchon, Inc., Turners Falls	97	July
	PAGE SEED CO., Greene, N. Y.		
366	Long Yellow, Six Weeks Burlingame Hardware Co., Oxford	92	June
793	Brockton Pole Stone Hardware Co., Brockton	99	June
795	Pencil Pod Black Wax Stone Hardware Co., Brockton	98	June
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
44	Kentucky Wonder (Green Pod) (Wholesaler's Germination Test, 94%) Wells Hardware Co., Holyoke	90	May
166	Dwarf Horticultural H. S. Chadbourne, Milford	94	June
506	Improved Rustless Golden Wax Frank Howard, Inc., Pittsfield	96	July
507	Giant Stringless Green Pod (Wholesaler's Germination Test, 96%) Frank Howard, Inc., Pittsfield	94	July
527	Yellow Eye S. Allen & Sons, Greenfield	93	July
712	Kentucky Wonder Pole Pierce Hardware Co., Taunton	95	June
713	Kidney Wax Pierce Hardware Co., Taunton	91	June
714	Yellow Eye Pierce Hardware Co., Taunton	89	June
780	Horticultural Sherman Hardware Co., Plymouth	100	June
809	Dwarf Green Pod Hamilton Hardware Co., Clinton	79	July
810	Sure Crop Wax Hamilton Hardware Co., Clinton	96	July
	J. RUSSELL & CO., Holyoke, Mass.		
525	Horticultural	99	July

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1937 Month of Test
	BEANS — Concluded		
	JOHN VARICK SEED CO., Manchester, N. H.		
867	Improved Golden Wax L. L. Peavy Co., Hardware, Newburyport	96	June
	F. H. WOODRUFF & SONS, Milford, Conn.		
511	King Horticultural Crown Paint & Paper Co., North Adams	91	July
764	Burpee's Bush Lima Bliss Hardware Co., Plymouth	91	June
	S. D. WOODRUFF & SONS, Orange, Conn.		
263	Golden Wax W. E. Aubuchon Hardware Co., Hudson	88	May
855	Webber Wax J. D. Fairbanks Co., Bridgewater	92	July
	WHOLESALER UNKNOWN		
813	Golden Wax W. E. Aubuchon Hardware Co., Clinton	85	July
	BEETS		
	THOMAS W. EMERSON CO., Boston, Mass.		
273	Dewing's Early Parker Hardware Co., Maynard	78	July
520	Detroit Dark Red Orange Hardware Co., Inc., Orange	83	July
595	Mammoth Long Red W. H. Dewhirst Grain Co., Haverhill	98	July
829	Crosby's Egyptian Norwood Hardware Co., Norwood	98	July
	FERRY-MORSE SEED CO., Detroit, Mich.		
49	Detroit Dark Red Carlisle Hardware Co., West Springfield	78	May
752	Early Blood Great Atlantic & Pacific Tea Co., Provincetown	85	July
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
24	Detroit Dark Red J. Russell & Co., Holyoke	90	May
154	Detroit Dark Red C. T. Price & Co., Athol	88	July
212	Early Blood Turnip Uxbridge Hardware Co., Uxbridge	72	May
574	Early Wonder M. W. Duggan Co., Newburyport	78	July
729	Early Wonder (Wholesaler's Germination Test, 75%) T. W. Pierce Hardware Co., Inc., Middleboro	80	July
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
304	Egyptian Blood Centralville Hardware Co., Lowell	83	July
332	Dewing's Improved Blood Red Smith Hardware Co., Inc., Reading	68	July
538	Early Egyptian E. E. Putnam, South Deerfield	69	July
562	Dewing's Improved Blood Red Wilson's Hardware Co., Newburyport	67	uly
619	Early Egyptian Blood J. W. Carter Co., Hardware, Manchester	55	July

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1937 Month of Test
	BEETS — Concluded		
669	Dewing's Blood Red North Shore Hardware Co., Lynn	75	July
767	Egyptian Blood Bliss Hardware Co., Plymouth	86	July
832	Dewing's Improved Blood Red Central Hardware Co., Norwood	60	July
	NORTHRUP, KING & CO., Minneapolis, Minn.		
706	Detroit Red Beets W. C. Fuller, Mansfield	96	July
	PAGE SEED CO., Greene, N. Y.		
277	Egyptian Blood Seder & Grimber Grain Store, Maynard	73	July
854	Detroit Dark Red J. H. Fairbanks Co., Bridgewater	85	July
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
152	Crosby's Egyptian Bengston Hardware Co., Gardner	67	July
499	Boston Crosby (Wholesaler's Germination Test, 75%) Frank Howard, Inc., Pittsfield	82	July
500	Eclipse Blood (Wholesaler's Germination Test, 86%) Frank Howard, Inc., Pittsfield	84	July
534	Detroit Dark Red Clark Hardware Co., Greenfield	76	July
738	Edmands' Blood Turnip G. E. Doane, Middleboro	89	July
743	Detroit Dark Red S. C. M. Packard & Co., Cambridge	67	July
	ROSS BROS. CO., Worcester, Mass.		
414	Early Wonder (Wholesaler's Germination Test 99%) Ross Bros. Co., Worcester	94	July
800	Crosby Egyptian Trask Hardware Co., Brockton	93	July
	JOHN VARICK SEED CO., Manchester, N. H.		
565	Crosby Egyptian (Wholesaler's Germination Test 65%) L. L. Peavy Hardware Co., Newburyport	90	July
	F. H. WOODRUFF & SONS, Milford, Conn.		
820	Detroit Dark Red Town Square Supply Co., Norwood	82	July
	BROCCOLI		
	THOMAS W. EMERSON CO., Boston, Mass.		
173	Green Sprouting Wm. H. Casey, Milford	79	May
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
272	Italian Green Sprouting Parker Hardware Co., Maynard	58	June
454	Broccoli Rapa Duncan's Hardware Co., Melrose	79	July
	BRUSSELS SPROUTS		
	FERRY-MORSE SEED CO., Detroit, Mich.		
642	Long Island Improved Salem Hardware Co., Salem	93	June

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1937 Month of Test
	CABBAGE		
	THOMAS W. EMERSON CO., Boston, Mass.		
264	Improved Savoy	63	July
	Farm Service Stores, Hudson		
	FERRY-MORSE SEED COMPANY, Detroit, Mich.		
207	Premium Late Flat Dutch Cabbage	96	May
	E. A. Landery, Northbridge		
253	All Head Early	91	July
	Sears Roebuck Co., Framingham		
	FRASER'S, Wellesley, Mass.		
129	Danish Ball Head	85	May
	(Wholesaler's Germination Test, approx. 90%) (1937)		
	Fitchburg Hardware Co., Fitchbug		
249	Golden Acre	96	July
	Vanduzer Hardware Co., Framingham		
781	Danish Ball Head	90	July
	Sherman Hardware Co., Plymouth		
	FREDONIA SEED CO., Fredonia, N. Y.		
64	Danish Ball Head	64	May
	Clark Hardware Co., West Springfield		
344	All Head Early	82	July
	Skelton Hardware Co., Newton Center		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
113	Premium Late Flat Dutch	92	May
	(Wholesaler's Germination Test, 75% or better) (1937)		
	O. B. Parks Co., Westfield		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
300	Early Jersey Wakefield	6	July
	Centerville Hardware Co., Lowell		
568	Early Jersey Wakefield	11	July
	Wilson's Hardware Co., Newburyport		
	NORTHRUP, KING & CO., Minneapolis, Minn.		
148	Copenhagen Market	72	May
	Davis Hardware Co., Gardner		
	JEROME B. RICE SEED CO. Cambridge, N. Y.		
292	Mammoth Rock Red	82	July
	The Smith Hardware Co., Lowell		
356	Danish Ball Head	87	July
	J. B. Sibley & Son Hardware & Paint Co., Ware		
434	Late Flat Dutch	67	July
	Rossier's Nation Wide Stores, Paxton		
785	Late Flat Dutch	90	July
	Kingston Hardware Co., Kingston		
	ROSS BROS. CO., Worcester, Mass.		
438	Danish Ball Head	50	July
	D. N. Hoff, Clover Farm Stores, Rutland		
799	Stone Mason	40 (R)	August
	Trask Hardware Co., Brockton		
	CAULIFLOWER		
	BUDD D. HAWKINS, Reading, Vt.		
61	Early Snow-ball	78	May
	Clark Hardware Co., West Springfield		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
305	Early Snow-ball	33	June
	Centralville Hardware Co., Lowell		

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1937 Month of Test
	CAULIFLOWER — Concluded		
	PAGE SEED CO., Greene, N. Y.		
791	Snow-ball (Wholesaler's Germination Test, 75%) (1936) J. T. Porter Store, Pembroke	74	July
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
226	Early Snow-ball Tait Bros., Uxbridge	88	June
610	Early Snow-ball L. E. Andrews Co., Gloucester	91	June
	CARROTS		
	BARTLETT & DOW HARDWARE CO., Lowell, Mass.		
285	Danvers Half Long Bartlett & Dow Hardware Co., Lowell	69	June
	CROSSMAN'S SEED CO., Inc., East Rochester, N. Y.		
358	Improved Long Orange J. B. Sibley & Son, Hardware & Paints, Ware	77	June
	EASTERN STATES FARMERS' EXCHANGE, West Springfield, Mass.		
459	Hutchinson (Lot No. 7-A-1717) (Wholesaler's Germination Test, 71%) Essex County Cooperative Farming Association, Topsfield	81	June
	THOMAS W. EMERSON CO., Boston, Mass.		
396	Danvers Half Long Waite Hardware Co., Webster.	64	June
	FERRY-MORSE SEED CO., Detroit, Mich.		
47	Chantenay, Red Cored Carlisle Hardware Co., West Springfield	62	May
329	Chantenay, Red Cored Henry Duncan Hardware, Inc., Reading	62	June
422	Ox-Heart Elwood Adams Hardware Co., Worcester	70	June
436	Danvers Half Long D. M. Hoff, Clover Farm Stores, Rutland	69	June
455	Danvers Half Long Duncan Hardware Co., Melrose	66	June
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
30	Danvers Half Long (Wholesaler's Germination Test, 65% or better) (1937) J. Russell & Co., Holyoke	69	May
586	Imperator (Long Orange) (Wholesaler's Germination Test, 65%) (1937) Herman F. Dano, Merrimac	75	June
	BUDD D. HAWKINS, Reading, Vt.		
135	Ox-Heart Grueners Hardware Store, Fitchburg	67	May
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
336	Danvers Half Long Smith Hardware Co., Reading	64	June
385	Chantenay Wilson's Hardware Co., Newburyport	45	June
620	Danvers Half Long J. M. Carter Co., Hardware, Manchester	45	June
646	Danvers Half Long W. T. Cloon Hardware Co., Marblehead	48	June
668	Chantenay North Shore Hardware Co., Lynn	28	June

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1937 Month of Test
	CARROTS — Concluded		
732	Chantenay Ka-Daw-Cut Farm Stores, Middleboro	63	June
758	Chantenay G. W. Cooper, Plymouth	45	June
	LANDRETH SEED COMPANY, Bristol, Pa.		
425	Long Orange Elwood Adams Hardware Co., Worcester	73	June
	NORTHRUP, KING & CO., Minneapolis, Minn.		
439	Ox-Heart A. I. Griffen, Grocer, Rutland	60	June
	PAGE SEED COMPANY, Greene, N. Y.		
79	Improved Long Orange (Wholesaler's Germination Test, 65% or better) (1937) George Methe Co., Springfield	68	May
250	Ox-Heart (Wholesaler's Germination Test, 65%) Vanduzer Hardware Co., Framingham	59½(R)	August
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
236	Danvers Half Long Marlboro Hardware Co., Marlboro	61	June
	ROSS BROS. CO Worcester, Mass.		
211	Early Chantenay E. A. Landery, Northbridge	64	May
268	Danvers Half Long A. T. Knight & Co., Grain Store Hudson	46	June
	CELERY		
	FERRY-MORSE SEED CO., Detroit, Mich.		
687	Golden Yellow Great Atlantic & Pacific Tea Co., Wrentham	69	July
	FRASER'S, Wellesley, Mass.		
314	Golden Yellow Self Blanching Treat Hardware Co., Lawrence	85	June
634	Giant Pascal Waters Brown Hardware Co., Salem	81	July
	FREDONIA SEED COMPANY, Fredonia, N. Y.		
65	Giant Pascal Clark Hardware Co., West Springfield	81	May
	J. J. H. GREGORY & SON, Marblehead, Mass.		
658	Golden Plume J. J. H. Gregory & Son, Marblehead	85	June
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
202	White Plume (Wholesaler's Germination Test, 80%) (1937) Charles Tebo, Grafton	82	May
	PAGE SEED CO., Greene, N. Y.		
81	Giant Pascal (Wholesaler's Germination Test, 60%) (1937) George Methe Co., Springfield	70	May
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
261	Golden Self Blanching Robinson Hardware Co., Hudson	36	June
446	White Plume Kelton's Market, Holden	87	July
	CORN		
	BARTLETT & DOW CO., Lowell, Mass.		
286	Black Mexican Bartlett & Dow Co., Lowell	88	June

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1937 Month of Test
	CORN — Continued		
289	Crosby Bartlett & Dow Co., Lowell	98	June
	JOSEPH BRECK & SONS CORP., Boston, Mass.		
182	Whipple's Yellow Geb Hardware Co., Franklin	94	June
183	Golden Bantam Geb Hardware Co., Franklin	91	June
	COMSTOCK-FERRE CO., Wethersfield, Conn.		
19	Golden Cross Foster-Farrar Co., Northampton	97	May
	THOMAS W. EMERSON CO., Boston, Mass.		
228	Golden Sunshine Adams Hardware Co., Northboro	97	June
274	Golden Sunshine Parker Hardware Co., Maynard	95	June
298	Golden Hummer Cover & Palm Grain Co., Lowell	95	June
426	Country Gentleman Sweet Lincoln Square Hardware Co., Worcester, Mass.	95	June
593	Golden Bantam W. H. Dewhirst, Haverhill	92	June
601	Golden Bantam L. E. Smith Hardware Co., Gloucester	89	June
	J. J. H. GREGORY & SON, Marblehead, Mass.		
654	Bantam Evergreen J. J. H. Gregory & Son, Marblehead	97	June
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
23	Golden Bantam J. Russell & Co., Holyoke	97	May
114	Early Golden Sunshine Leominster Hardware Co., Leominster	88	May
157	Golden Sunshine C. T. Price & Co., Athol	93	June
318	Whipple's Yellow Treat Hardware Co., Lawrence	90	June
319	Stowell's Evergreen Treat Hardware Co., Lawrence	93	June
320	Golden Cross Bantam Treat Hardware Co., Lawrence	99	June
388	Whipple's Early Yellow Essex Co. Cooperative Farming Association, Topsfield	67	June
561	Yellow Sensation Essex Co. Cooperative Farming Association, Topsfield	79	June
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
334	Stowell Evergreen Smith Hardware Co., Reading	84	June
622	Stowell's Evergreen J. W. Carter Hardware Co., Manchester	40	June
647	Country Gentlemen W. F. Cloon, Marblehead	60	June
	LEONARD SEED CO., Chicago, Ill.		
177	Golden Hummer Kingman Hardware Co., Franklin	96	June
581	Golden Hummer T. B. Keene Hardware Co., Amesbury	98	June

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1937 Month of Test
	CORN — Concluded		
627	Golden Hummer Winer Bros., Beverly	99	June
	PAGE SEED CO., Greene, N. Y.		
275	Golden Sunshine Seder & Gimber Grain Co., Maynard	98	June
276	Whipple's Yellow Sweet Seder & Gimber Grain Co., Maynard	97	June
375	Golden Evergreen Gatzke Hardware Co., Webster	87	June
402	Golden Giant Harry Seder, Webster	95	June
	C. PEDRICK SEED CO., Pedrickstown, N. J.		
198	Whipple's Yellow M. J. Van Leeman (The Continental Nurseries), Franklin	88	June
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
165	Golden Giant (Wholesaler's Germination Test 90%) H. S. Chadbourne Co., Milford	93	June
311	Country Gentleman Treat Hardware Co., Lawrence	76	June
451	Golden Bantam Sweet Whitmore Hardware Co., Melrose	90	June
	ROSS BROS. CO., Worcester, Mass.		
367	Golden Giant Burlingame Hardware Co., Oxford	98	June
	S. D. WOODRUFF & SONS, Orange, Conn.		
10	Woodruff's Selected Beauty (Wholesaler's Germination Test 90%) (1937) W. N. Potter & Sons, Northampton	93	June
265	Purdue Golden Bantam Farm Service Stores, Hudson	98	June
	CRESS		
	FRASER'S, Wellesley, Mass.		
345	Pepper Grass Pebco Hardware Co., Wellesley	58	August
	CUCUMBER		
	BARTLETT & DOW CO., Lowel		
284	Davis Perfect Bartlett & Dow Co., Lowell	85	June
	COMSTOCK-FERRE CO., Wethersfield, Conn.		
540	White Spine L. S. Field, Montague	91	July
625	White Spine Whitcomb Carter Co., Beverly	91	June
	FERRY-MORSE SEED CO., Detroit, Mich.		
50	Improved Long Green Carlisle Hardware Co., West Springfield	88	May
616	Improved Long Green C. R. Beston Hardware Co., Manchester	89	June
683	Early Short Green Sinclair Hardware Co., Medford	77	June
686	Early Short Green Great Atlantic & Pacific Tea Co., Wrentham	82	June
719	Boston Pickling Taunton Plumbing & Hardware Co., Taunton	85	June

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1937 Month of Test
	CUCUMBER — Continued		
753	White Spine A. C. Chapman, Great Atlantic & Pacific Tea Co., Provincetown	87	June
755	Improved Long Green J. D. Hilliard, Inc., Provincetown	92	June
788	Short Green Sweetzer's General Store, Duxbury	79	June
	FRASER'S, Wellesley, Mass.		
369	Boston Pickling Burlingame Hardware Co., Oxford	97	June
	J. J. H. GREGORY & SON, Marblehead, Mass.		
653	Improved White Spine J. J. H. Gregory & Son, Marblehead	97	June
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
29	Improved White Spine (Wholesaler's Germination Test 85%) (1937) J. Russell & Co., Holyoke	87	May
138	Improved White Spine Grueners Hardware Co., Fitchburg	84	June
512	Long Green Berkshire Hardware Co., Pittsfield	95	July
550	Long Green (Wholesaler's Germination Test 85% or better) (1937) Red & White Store, North Hatfield	98	July
585	Boston Pickling (Wholesaler's Germination Test 85%) (1937) Herman F. Dano, Merrimac	82	June
730	Improved Long Green (Wholesaler's Germination Test 85%) (1937) T. W. Pierce Hardware Co., Middleboro	90	June
782	Improved White Spine (Wholesaler's Germination Test 90%) (1937) Sherman Hardware Co., Plymouth	93	June
	BUDD D. HAWKINS, Reading, Vt.		
240	Long Green (Improved) Lamson Hardware Co., Marlboro	90	June
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
703	Boston Pickling J. W. Gove, Inc., Wrentham	64	June
765	Peerless White Spine Bliss Hardware Co., Plymouth	51	June
	NORTHRUP, KING & CO., Minneapolis, Minn.		
522	Improved Long Green W. E. Aubuchon, Inc., Turners Falls	97	July
798	Improved Long Green Trask Hardware Co., Brockton	95	June
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
210	Early White Spine A. E. Landery, Northbridge	87	June
440	Boston Pickling A. I. Griffen, Grocer, Rutland	76	June
716	White Spine (Improved Early Arlington) Pierce Hardware Co., Taunton	89	June
	ROSS BROS. CO., Worcester, Mass.		
297	Early White Spine Cover & Palm Co., Grain, Lowell	79	June
553	Boston Pickling Whitcomb's Store, North Hatfield	99	July

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1937 Month of Test
	CUCUMBER — Concluded		
	F. H. WOODRUFF & SONS, Milford, Conn.		
514	Improved White Spine	99	July
	Crown Paper & Paint Co., North Adams		
636	Hybrid	92	June
	B. F. Hill Co., Hardware, Salem		
819	White Spine (Improved)	87	July
	Town Square Hardware & Supply Corp., Norwood		
	WHOLESALER UNKNOWN		
353	Early Fortune	23	June
	J. B. Sibley & Son, Hardware & Paint, Ware		
	DANDELION		
	THOMAS W. EMERSON CO., Boston, Mass.		
295	Thick Leaf	11	June
	The Thompson Hardware Co., Lowell		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
567	Dandelion	7	July
	North Shore Hardware Co., Lynn		
	DILL		
	FERRY-MORSE SEED CO., Detroit, Mich.		
630	Dill	77	June
	Winer Bros., Beverly		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
213	Long Island Mammoth	56	May
	(Wholesaler's Germination Test 50%) (1937)		
	Uxbridge Hardware Co., Uxbridge		
	EGGPLANT		
	CROSSMAN SEED CO., East Rochester, N. Y.		
257	Improved New York Purple	79	June
	(Wholesaler's Germination Test 80%) (1937)		
	S. S. Kresge (5 & 10c Store), Framingham		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
218	Early Large Purple	39	May
	Uxbridge Hardware Co., Uxbridge		
	ENDIVE		
	CROSSMAN SEED CO., East Rochester, N. Y.		
256	Green Curled	90	June
	(Wholesaler's Germination Test 90%)		
	S. S. Kresge 5 & 10c Store, Framingham		
	BUDD D. HAWKINS, Reading, Vt.		
62	Broad-leaved Batavian	83	May
	Clark Hardware Co., West Springfield		
371	Green Curled (Giant Fringed Oyster)	86	June
	Burlingame Hardware Co., Oxford		
	PAGE SEED CO., Greene, N. Y.		
835	Moss Curled	87	July
	(Wholesaler's Germination Test 75%) (1936)		
	H. A. Spear & Son, Inc., Walpole		
	WHOLESALER UNKNOWN		
812	Endive	83	July
	W. E. Aubuchon Hardware Co., Clinton		
	KALE		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
701	Kale	27	June
	J. W. Gove Hardware, Inc., Foxboro		

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1937 Month of Test
	KOHL RABI		
	NORTHRUP, KING & CO., Minneapolis, Minn.		
262	Early White	82	June
	W. E. Aubuchon Hardware Co., Hudson		
	LEEK		
	THOMAS W. EMERSON CO., Boston, Mass.		
294	Large Flag	96	June
	The Thompson Hardware Co., Lowell		
	LETTUCE		
	BARTLETT & DOW CO., Hardware, Lowell, Mass.		
282	Big Boston	96	June
	Bartlett & Dow Co., Hardware, Lowell		
	JOSEPH BRECK & SONS CORP., Boston, Mass.		
816	Big Boston	95	July
	Chase Hardware Co., Dedham		
	COMSTOCK-FERRE CO., Wethersfield, Conn.		
523	Iceberg	96	June
	Whitcomb Carter Co., Hardware, Beverly		
	CROSSMAN SEED CO., East Rochester, N. Y.		
357	Iceberg	59 (R)	June
	J. B. Sibley & Son, Hardware & Paints, Ware		
	FERRY-MORSE SEED CO., Detroit, Mich.		
52	Black Seeded Simpson	86	May
	Carlisle Hardware Co., West Springfield		
153	Romaine	85	May
	Bengston Hardware Co., Gardner		
206	Early Curled	92	May
	E. A. Landery Northbridge		
492	Black Seeded Simpson	96	July
	C. G. Glennan, Dalton		
548	Big Boston	96	July
	H. W. Wolfram, North Hatfield		
644	Prize Head	90	June
	E. K. Murphy Hardware Co., Marblehead		
673	White Romaine	89	June
	Hutchinson Hardware Co., Lynn		
805	Black Seeded Simpson	97	June
	Brockton Hardware Co., Brockton		
827	Salamander	10	July
	Norwood Hardware & Supply Co., Norwood		
	FRASER'S, Wellesley, Mass.		
803	Special White Big Boston	97	June
	Brockton Hardware Co., Brockton		
	FREDONIA SEED CO., Fredonia, N. Y.		
445	Early Prize Head	75	June
	C. L. Bigelow, Grocer, Rutland		
518	Grand Rapids	83	July
	E. M. Gulow & Co., Turners Falls		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
32	Iceberg	88	May
	(Wholesaler's Germination Test 75% or better) (1937)		
	J. Russell & Co., Holyoke		
137	Big Boston	74	May
	(Wholesaler's Germination Test 70% or better) (1937)		
	Gueners Hardware Store, Fitchburg		

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1937 Month of Test
	LETTUCE — Continued		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
235	Big Boston (Wholesaler's Germination Test 70%) Hanley Hardware Co., Marlboro	70	June
488	May King J. M. Van Duesen, Stockbridge	96	July
492	Big Boston F. H. Turner & Co., Gt. Barrington	97	July
513	Big Boston (Wholesaler's Germination Test 70%) (1937) Commercial Hardware & Paint Co., Adams	75	July
542	Early Curled Simpson F. C. Sears Co., South Deerfield	99	July
	HYGRADE SEED CO., INC., Tuckahoe, N. Y.		
59	Iceberg (Wholesaler's Germination Test 85%) (1937) Clark Hardware Co., Springfield	86	May
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
217	Early Curled Silesia Uxbridge Hardware Co., Uxbridge	40	May
303	Grand Rapids Centralville Hardware Co., Lowell	68	June
335	Green Ice Head Smith Hardware Co., Reading	94	June
386	Silesia Wilson's Hardware Co., Newburyport	53	June
541	Grand Rapids E. E. Putnam, South Deerfield	92	July
621	Hanson J. W. Carter Co., Hardware, Manchester	45	June
648	Big Boston W. F. Cloon, Marblehead	34	June
759	Hanson G. W. Cooper, Plymouth	43	June
	LEONARD SEED CO., Chicago, Ill.		
857	New York or Wonderful A. E. Wardell, New Bedford	98	July
	NORTHRUP, KING & CO., Minneapolis, Minn.		
370	Grand Rapids Burlingame Hardware Co., Oxford	86	June
503	Prize Head Pierson Hardware Co., Pittsfield	72	July
744	Black Seeded Simpson S. M. C. Packard & Co., Wareham	84	June
	PAGE SEED CO., Greene, N. Y.		
78	Early Prize Head (Wholesaler's Germination Test 80%) (1936) George Methe Co., Springfield	78	May
269	Early Prize Head (Wholesaler's Germination Test 80%) (1936) A. T. Knight Co. Grain Stores, Hudson	83	June
487	Early Prize Head (Wholesaler's Germination Test 80%) (1936) Ford & Parker, Dalton	78	July

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1937 Month of Test
	LETTUCE — Concluded		
545	Black Seeded Simpson (Wholesaler's Germination Test 80%) (1936) Deerfield Hardware Co., South Deerfield	87	July
556	Early Prize Head (Wholesaler's Germination Test 80%) (1936) D. F. Riley, North Hatfield	73 (R)	July
	ROSS BROS. CO., Worcester, Mass.		
435	Black Seeded Tennis Ball Rossiers Nation Wide Stores, Paxton	59	June
608	Early Simpson L. E. Andrews Co., Hardware, Gloucester	92	June
761	May King G. W. Cooper, Plymouth	94	June
801	Prize Head Trask Hardware Co., Brockton	99	June
	F. H. WOODRUFF & SONS, Milford, Conn.		
490	New York No. 12 Platt & Goslee, Great Barrington	96	July
573	Black Seeded Tennis Ball M. W. Duggan Company, Newburyport	98	June
	MUSKMELON		
	EASTERN STATES FARMERS' EXCHANGE, West Springfield, Mass.		
387	Honey Rock (Wholesaler's Germination Test 92%) Essex County Cooperative Farming Assoc., Topsfield	95	June
	FERRY-MORSE SEED CO., Detroit, Mich.		
46	Hearts of Gold Carlisle Hardware Company, West Springfield	93	May
	J. J. H. GREGORY & SON, Marblehead, Mass.		
655	Osage J. J. H. Gregory & Son, Marblehead	94	June
	PAGE SEED CO., Greene, N. Y.		
172	Rocky Ford (Wholesaler's Germination Test 80%) (1936) Wm. T. Casey Store, Milford	71	June
	ONIONS		
	JOSEPH BRECK & SONS CORP., Boston, Mass.		
680	White Globe Lynn Bird & Seed Co., Lynn	88	June
	THOMAS W. EMERSON CO., Boston, Mass.		
110	Danvers Yellow Globe O. B. Parks & Co., Westfield	88	May
	FERRY-MORSE SEED CO., Detroit, Mich.		
51	Cebola Cipolla (For Bunching) Carlisle Hardware Co., West Springfield	89	May
53	Yellow Globe Carlisle Hardware Co., West Springfield	84	May
254	Red Wethersfield Sears Roebuck Co., Framingham	80	June
352	Cebola Cipolla (For Bunching) Lockheart Hardware Co., Natick	90	June
418	Southport Yellow Globe Waite Hardware Co., Worcester	98	June
575	Yellow Globe Danvers M. W. Duggan Co., Newburyport	97	June

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1937 Month of Test
	ONIONS — Concluded		
612	Southport Yellow Globe J. Raymond Smith Hardware Co., Gloucester	94	June
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
26	Yellow Globe Danvers (Wholesaler's Germination Test 70% or better) (1937) J. Russell & Co., Holyoke	63	May
243	Yellow Globe Danvers (Wholesaler's Germination Test 85%) (1937) Lamson Hardware Co., Marlboro	88	June
309	Red Wethersfield (Wholesaler's Germination Test 85%) Scott Hardware Co., Lowell	76 (R)	June
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
338	Silver Skin Smith Hardware Co., Inc., Reading	12	June
566	Silver Skin Wilson's Hardware Co., Newburyport	90	June
	NORTHRUP, KING & CO., Minneapolis, Minn.		
151	Yellow Globe Danvers Aubuchon Hardware Co., Gardner	78	May
168	Large Red Wethersfield H. S. Chadbourne Co., Milford	79	May
293	Yellow Globe Danvers The Smith Hardware Co., Lowell	73	June
	PAGE SEED CO., Greene, N. Y.		
376	Prizetake (Wholesaler's Germination Test 75%) (1937) Gatzke Hardware Co., Webster	83	June
	ROSS BROS. CO., Worcester, Mass.		
560	Yellow Globe D. Cashman Hardware Co., Newburyport	83	June
	PARSNIP		
	EASTERN STATES FARMERS' EXCHANGE, West Springfield Mass.		
456	Improved Hollow Grown Lot No. 24-B-3627 (Wholesaler's Germination Test 71%) Essex County Cooperative Farming Assoc., Topsfield	74	June
	THOMAS W. EMERSON CO., Boston, Mass.		
347	Large Smooth Fiske Hardware Co., Natick	44	June
579	Hollow Crown Farm Service Stores, Newburyport	69	June
604	Hollow Crown C. J. Gray Hardware Co., Gloucester	69	June
641	Hollow Crown Salem Hardware Co., Salem	59	June
838	Hollow Crown Charles T. Eastman, Falmouth	89	July
	FRASER'S, Wellesley, Mass.		
448	Hollow Crown (Wholesaler's Germination Test 80%) Whittmore Hardware Co., Melrose	79	June
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
25	Hollow Crown (Wholesaler's Germination Test 50% or better) (1937) J. Russell & Co., Holyoke	63	May

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1937 Month of Test
	PARSNIP — Concluded		
348	Hollow Crown Fiske Hardware Co., Natick	45	June
395	Hollow Crown (Wholesaler's Germination Test 50%) (1937) Waite Hardware Co., Webster	61	June
415	Hollow Crown Waite Hardware Co., Worcester	59	June
	LANDRETH SEED CO., Bristol, Pa.		
424	Hollow Crown Elwood Adams Hardware Co., Worcester	63	June
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
567	Hollow Crown Wilson's Hardware Co., Newburyport	4	June
	PAGE SEED CO., Greene, N. Y.		
80	Hollow Crown (Wholesaler's Germination Test 60% or better) (1937) George Methe Co., Springfield	68	May
	ROSS BROS. CO., Worcester, Mass.		
368	Hollow Crown Burlingame Hardware Co., Oxford	76	June
	F. H. WOODRUFF & SONS, Milford, Conn.		
355	Parsnip J. B. Sibley & Son, Hardware & Paints, Ware	84	June
	S. D. WOODRUFF & SONS, Orange, Conn.		
122	Hollow Crown Farm Service Stores, Leominster	71	May
	PARSLEY		
	THOMAS W. EMERSON CO., Boston, Mass.		
515	Double Curled E. M. Gulow & Co., Turners Falls	76	July
	FERRY-MORSE SEED CO., Detroit, Mich.		
570	Champion Moss Curled Wilson's Hardware Co., Newburyport	89	June
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
167	Dwarf Moss Curled H. S. Chadbourne Co., Milford	88	May
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
569	Plain Wilson's Hardware Co., Newburyport	31	June
665	Double Curled North Shore Hardware Co., Lynn	6	June
	NORTHRUP, KING & CO., Minneapolis, Minn.		
521	Dark Moss Curled Orange Hardware Co., Inc., Orange	63	July
	PAGE SEED CO., Greene, N. Y.		
359	Moss Curled (Wholesaler's Germination Test 60%) (1937) Robinson's Hardware Co., Ware	75	June
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
237	Large Hamburg Rooted Marlboro Hardware Co., Marlboro	66	June
502	Fern Leaved (Wholesaler's Germination Test 98%) (1937) Frank Howard, Inc., Pittsfield	93	July
537	Plain Levitt & Whitney, Orange	86	July

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1937 Month of Test
	PEAS		
	BARTLETT & DOW CO., Lowell, Mass.		
288	Thomas Laxton. Bartlett & Dow Co., Lowell	95	June
	JOSEPH BRECK & SONS CORP., Boston, Mass.		
742	Telephone. S. C. M. Packard & Co., Wareham	92	July
772	Hundred Fold. J. E. Jordan Co., Plymouth	99	July
773	Imp. Telephone. J. E. Jordan Co., Plymouth	97	July
787	Dwarf Telephone. Sweetser's General Store, Duxbury	57	July
818	Gradus. E. J. Kellan, Dedham	93	July
	COMSTOCK-FERRE CO., Wethersfield, Conn.		
18	Nott's Excelsior Dwarf. Foster-Farrar Co., Northampton	91	May
693	Sutton's Excelsior. Johnson Hardware Co., Wrentham	95	July
694	Gradus. Johnson Hardware Co., Wrentham	92	July
843	Gradus. Harvey's Hardware Store (Harvey M. Martin), Falmouth	95	July
	THOMAS W. EMERSON CO., Boston, Mass.		
139	Telephone. Gruener's Hardware Co., Fitchburg	95	June
174	World's Record. F. A. Gould Hardware Co., Milford	98	June
229	Thomas Laxton. Adams Hardware Co., Northboro	91	June
431	Blue Bantam. Lincoln Square Hardware Co., Worcester	92	June
532	Little Marvel. Orange Hardware Co., Inc., Orange	89	July
698	Telephone. J. W. Gove, Inc., Hardware, Foxboro	87	July
699	Premium Gem. J. W. Gove, Inc., Hardware, Foxboro	85	July
723	Mammoth Prize. Cobb, Bates & Yerxa Co., Taunton	85	July
807	Little Marvel. Essex County Cooperative Farming Assoc., Topsfield	96	July
834	Nott's Excelsior. H. A. Spear & Son, Inc., Walpole	96	July
840	Telephone. Charles T. Eastman, Falmouth	96	July
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
117	Sutton's Excelsior. Leominster Hardware Co., Leominster	97	June
145	Tall Telephone. Davis Hardware Co., Gardner	58 (R)	June
159	Little Marvel. C. T. Price & Co., Athol	97	June
247	World's Record. H. L. Sawyer & Co., Framingham	89	June

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1937 Month of Test
	PEAS— Concluded		
731	Hundredfold T. W. Pierce Hardware Co., Middleboro	98	July
	LEONARD SEED CO., Chicago, Ill.		
162	Alaska A. E. Stewart Estate, Athol	99	June
176	Thomas Laxton Kingman Hardware Co., Franklin	95	June
178	Alderman Kingman Hardware Co., Franklin	93	June
	PAGE SEED CO., Greene, N. Y.		
535	Improved Telephone D. F. Riley, North Hatfield	91	July
792	Sutton's Excelsior Stone Hardware Co., Brockton	89	July
794	Dwarf Champion P Stone Hardware Co., Brockton	98	July
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
43	Alaska (Wholesaler's Germination Test 96%) Wells Hardware Co., Holyoke	98	May
479	Dwarf Telephone R. E. Faulkner, Palmer	97	July
508	Howard's Hundredfold (Wholesaler's Germination Test 95%) (1937) Frank Howard, Inc., Pittsfield	99	July
509	Thomas Laxton Frank Howard, Inc., Pittsfield	99	July
528	Tall Telephone Clark Hardware Co., Greenfield	99	July
739	Laxton's Progress G. E. Doane, Middleboro	95	July
762	Dwarf Telephone P Sherman Hardware Co., Plymouth	72	July
779	Nott's Excelsior Sherman Hardware Co., Plymouth	86	July
783	Telephone Kingston Hardware Co., Kingston	90	July
808	Improved Dwarf Telephone Hamilton Hardware Co., Clinton	96	July
	F. H. WOODRUFF & SONS, Milford, Conn.		
765	Gradus Bliss Hardware Co., Plymouth	98	July
	PEPPERS		
	THOMAS W. EMERSON CO., Boston, Mass.		
234	Neapolitan Hanley Hardware Co., Marlboro	24	June
	FERRY-MORSE SEED CO., Detroit, Mich.		
417	Ruby King Waite Hardware Co., Worcester	86	June
607	Sweet Bull Nose C. G. Gray & Sons, Inc., Gloucester	80	June
	FRASER'S, Wellesley, Mass.		
684	World Beater Sinclair Hardware Co., Medford	97	June

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1937 Month of Test
	PEPPERS — Concluded		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
725	California Wonder	72	June
	Cobb, Bates & Yerxa Co., Taunton		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
663	Red Bell	13	June
	North Shore Hardware Co., Lynn		
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
308	Large Bell	74	June
	Scott Hardware Co., Lowell		
330	Red Cherry Peparoli	63	June
	Henry Duncan Hardware Co., Reading		
339	Harris' Earliest	83	June
	J. H. Chandler & Son Hardware Co., Newton Center		
	PUMPKIN		
	JOSEPH BRECK & SONS CORP., Boston, Mass.		
681	Small Sugar	52	June
	Lynn Bird & Seed Co., Lynn		
	BUDD D. HAWKINS, Reading, Vt.		
136	Sugar or Pie	93	June
	Grueners Hardware Store, Fitchburg		
	PAGE SEED CO., Greene, N. Y.		
171	Large Field	76	June
	(Wholesaler's Germination Test 75%) (1937)		
	W. H. Casey Store, Milford		
	RADISH		
	THOMAS W. EMERSON CO., Boston, Mass.		
476	Scarlet Globe	94	June
	W. C. Ring, Palmer		
539	Early Scarlet Turnip	95	July
	L. S. Field, Montague		
	FERRY-MORSE SEED CO., Detroit, Mich.		
483	Early Scarlet Turnip White Tipped	93	July
	C. F. Glennan, Dalton		
524	Early Scarlet Turnip White Tipped	91	July
	S. Allen & Sons, Greenfield		
643	Crimson Giant	94	June
	E. K. Murphy Hardware Co., Marblehead		
	FRASER'S, Wellesley, Mass.		
214	French Breakfast	95	May
	(Wholesaler's Germination Test 95%) (1937)		
	Uxbridge Hardware Co., Uxbridge		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
31	Early Scarlet Globe	89	May
	(Wholesaler's Germination Test 85% or better) (1937)		
	J. Russell & Co., Holyoke		
180	Early White Tipped Scarlet	98	May
	(Wholesaler's Germination Test 85%) (1937)		
	Kingman Hardware Co., Franklin		
447	Scarlet Globe	91	June
	Kelton's Market, Holden		
551	Early White Tipped Scarlet	87	July
	Red & White Store, North Hatfield		
852	White Icicle	95	July
	Saunders Hardware & Paint Co., Middleboro		

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1937 Month of Test
	RADISH — Concluded		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
766	Early Red	38	June
	Bliss Hardware Co., Plymouth		
	LANDRETH SEED CO., Bristol, Pa.		
516	French Breakfast	91	July
	(Wholesaler's Germination Test 86%) (1937)		
	H. Newell & Co., Shelburne Falls		
	NORTHRUP, KING & CO., Minneapolis, Minn.		
149	Long White Icicle	92	May
	Davis Hardware Co., Gardner		
496	French Breakfast	98	July
	Phelan Hardware Co., Lee		
	PAGE SEED CO., Greene, N. Y.		
494	Long White Icicle	89	July
	(Wholesaler's Germination Test 80%) (1936)		
	Ford & Parker, Dalton		
546	Early Scarlet Turnip	93	July
	(Wholesaler's Germination Test 85%) (1936)		
	South Deerfield Hardware Co., So. Deerfield		
552	Early Scarlet Turnip	90	July
	(Wholesaler's Germination Test 85%) (1936)		
	D. F. Riley, North Hatfield		
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
118	Rice's Imp. Scarlet Globe	86	May
	Leominster Hardware Co., Leominster		
270	Early Scarlet White Tipped	85	June
	MacPherson's Hardware, Maynard		
312	French Breakfast	75	June
	Treat Hardware Co., Lawrence		
449	Scarlet Turnip (Early)	86	June
	Whitmore Hardware Co., Melrose		
501	Scarlet Turnip White Icicle	96	July
	(Wholesaler's Germination Test 90%) (1937)		
	Frank Howard, Inc., Pittsfield		
	ROSS BROS. CO., Worcester, Mass.		
397	Early Scarlet	97	June
	Waite Hardware Co., Webster		
557	Early Scarlet	98	July
	Whitcomb Store, North Hatfield		
	F. H. WOODRUFF & SONS, Milford, Conn.		
491	Early Scarlet	96	July
	Platt & Goslee, Great Barrington		
50[illegible]	French Breakfast	99	July
	Pierson Hardware Co., Pittsfield		
	WHOLESALER UNKNOWN		
814	Early Scarlet	73	July
	Aubuchon Hardware Co., Clinton		
	ROSEMARY		
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
340	Rosemary	14	June
	J. H. Chandler & Son Hardware Co., Newton Center		
	RUTA BAGA		
	FERRY-MORSE SEED CO., Detroit, Mich.		
549	American Purple Top	98	July
	H. W. Wolfram, North Hatfield.		

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1937 Month of Test
	RUTA BAGA — Concluded		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
200	White Rock (Wholesaler's Germination Test 85%) (1937) Charles Tebo, Grafton	86	July
	BUDD D. HAWKINS, Reading, Vt.		
421	Improved Purple Top Yellow Hardy Swede Elwood Adams Hardware Co., Worcester	87	June
519	Improved Purple Top Yellow Hardy Swede Orange Hardware Co., Inc., Orange	85	July
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
733	Ruta Baga Ka-Daw-Cut Farm Stores, Middleboro	36	June
	PAGE SEED CO., Greene, N. Y.		
360	American Purple Top (Wholesaler's Germination Test 80%) (1937) Robinson's Hardware Co. Ware	82	June
	ROSS BROS. CO., Worcester, Mass.		
609	Long Island Improved L. E. Andrews Co., Hardware, Gloucester	83	July
	F. H. WOODRUFF & SONS, Milford, Conn.		
822	Ruta Baga Town Square Hardware & Supply Co., Norwood	92	July
	SAGE		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
203	Broad Leaved (Wholesaler's Germination Test 80%) (1937) Charles Tebo, Grafton	50 (R)	May
	BUDD D. HAWKINS, Reading, Vt.		
163	English Broad Leaf A. E. Stewart Estate, Athol	63	May
	SALSIFY		
	JOSEPH BRECK & SONS CORP., Boston, Mass.		
849	Salsify H. V. Lawrence, Falmouth	95	July
	BUDD D. HAWKINS, Reading, Vt.		
232	Mammoth Sandwich Island Hanley Hardware Co., Marlboro	87	July
	SAVORY		
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
225	Summer Savory Taft Bros., Uxbridge	24	July
	SPINACH		
	JOSEPH BRECK & SONS CORP., Boston, Mass.		
784	Bloomsdale Kingston Hardware Co., Kingston	81	June
	COMSTOCK-FERRE CO., Wethersfield, Conn.		
842	King of Denmark Harvey's Hardware Co. (Mr. Martin Harvey), Falmouth	30	July
	THOMAS W. EMERSON CO., Boston, Mass.		
457	King of Denmark Essex County Cooperative Farming Assoc., Topsfield	87	June
594	Bloomsdale W. H. Dewhirst Grain Co., Haverhill	95	June
826	Round Thick Leaved Norwood Hardware & Supply Co., Norwood	55	July

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1937 Month of Test
	SPINACH — Concluded		
	FERRY-MORSE SEED CO., Detroit, Mich.		
72	Juliana	85	May
	Carlisle Hardware Co., West Springfield		
635	Giant Thick Leaved	80	June
	Waters & Brown Hardware Co., Salem		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
278	Reselected Bloomsdale Savoy	98	June
	(Wholesaler's Germination Test 85%) (1937)		
	Vanderhoff Hardware Co., Concord		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
220	Round Leaf	27	May
	Uxbridge Hardware Co., Uxbridge		
337	Round Leaf	73	June
	Smith Hardware Co., Reading		
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
119	Bloomsdale Savoy Leaved	85	May
	Leominster Hardware Co., Leominster		
	F. H. WOODRUFF & SONS, Milford, Conn.		
821	Giant Thick Leaved	85	July
	Town Square Hardware Co., Norwood		
	SQUASH		
	BARTLETT & DOW CO., Lowell, Mass.		
283	Summer Straightneck	94	June
	Bartlett & Dow Co., Lowell		
	EASTERN STATES FARMERS' EXCHANGE, West Springfield, Mass.		
558	Blue Hubbard	74	June
	Essex County Cooperative Farming Assoc., Topsfield		
	THOMAS W. EMERSON CO., Boston, Mass.		
596	Blue Hubbard	90	June
	W. H. Dewhirst Grain Co., Haverhill		
	BUDD D. HAWKINS, Reading, Vt.		
588	Summer Golden Crookneck	94	June
	Herman F. Davis, Merrimac		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
27	Giant Summer Crookneck	76	May
	(Wholesaler's Germination Test 85% or better) (1937)		
	J. Russell & Co., Holyoke		
564	Improved Hubbard	68	June
	(Wholesaler's Germination Test 65%) (1937)		
	L. L. Peavy Hardware Co., Newburyport		
	LEONARD SEED CO., Chicago, Ill.		
181	Green Hubbard	86	June
	Kingman Seed Co., Franklin		
	NORTHRUP, KING & CO., Minneapolis, Minn.		
150	Summer Crookneck	73	June
	Aubuchon Hardware Co., Gardner		
	PAGE SEED CO., Greene, N. Y.		
77	Improved Hubbard	87	May
	(Wholesaler's Germination Test 75% (1937)		
	George Methe Co., Springfield		
	F. H. WOODRUFF & SONS, Milford, Conn.		
354	Summer Crookneck	89	June
	J. B. Sibley & Son, Ware		
	SWISS CHARD		
	THOMAS W. EMERSON CO., Boston, Mass.		
837	Swiss Chard	74	July
	Charles T. Eastman, Falmouth		

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1937 Month of Test
	SWISS CHARD — Concluded		
	FRASER'S, Wellesley, Mass.		
127	Swiss Chard	86	July
	Fitchburg Hardware Co., Fitchburg		
420	Broad Rib Green	83	July
	Elwood Adams Hardware Co., Worcester		
	FREDONIA SEED CO., Fredonia, N. Y.		
443	Swiss Chard	66	July
	C. L. Bigelow, Grocer, Rutland		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
156	Lucullus	87	July
	C. T. Price & Co., Athol		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
216	Swiss Chard	68	July
	Uxbridge Hardware Co., Uxbridge		
306	Swiss Chard	67	July
	Centralville Hardware Co., Lowell		
333	Swiss Chard or Sea Kale Beet	53	July
	Smith Hardware, Inc., Reading		
563	Swiss Chard	66	July
	Wilson's Hardware Co., Newburyport		
	TOMATO		
	THOMAS W. EMERSON CO., Boston, Mass.		
584	John Baer	95	June
	F. B. Keene, Amesbury		
605	Bonnie Best	97	June
	C. J. Gray & Sons, Inc., Gloucester		
	FERRY-MORSE SEED CO., Detroit, Mich.		
442	Stone Tomato	83	June
	A. I. Griffin, Grocer, Rutland		
	FRASER'S, Wellesley, Mass.		
147	Master Marglobe	87	May
	(Wholesaler's Germination Test 85%) (1937)		
	Davis Hardware Co., Gardner		
259	Master Marglobe	87	June
	(Wholesaler's Germination Test 80%) (1937)		
	Robinson Hardware Co., Hudson		
	FREDONIA SEED CO., Fredonia, N. Y.		
63	Livingston's Beauty	83	May
	Clark Hardware Co., West Springfield		
	J. J. H. GREGORY & SON, Marblehead, Mass.		
659	Ponderosa	91	June
	J. J. H. Gregory & Son, Marblehead		
	BUDD D. HAWKINS, Reading, Vt.		
587	Clark's Early Jewel	82	June
	Herman F. Davis, Merrimac		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
201	Earliana	93	May
	(Wholesaler's Germination Test 80%) (1937)		
	Charles Tebo, Grafton		
251	Hart's Improved Stone	66	June
	(Wholesaler's Germination Test 70%)		
	Vanduzer Hardware Co., Framingham		
505	Hart's Improved Stone	62	July
	(Wholesaler's Germination Test 70%)		
	Berkshire Hardware Co., Inc., Pittsfield		
571	Ponderosa	91	June
	(Wholesaler's Germination Test 85%) (1937)		
	Wilson's Hardware Co., Newburyport		

1937 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1937 Month of Test
	TOMATO — Concluded		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
734	Acme	80	June
	Ka-Daw-Cut Farm Stores, Middleboro		
	ROSS BROS. CO., Worcester, Mass.		
267	Dwarf Champion	88	June
	A. T. Knight Co., Grain Store, Hudson		
437	Beauty	95	June
	D. M. Hoff, Clover Farm Stores, Rutland		
441	Dwarf Champion	90	June
	A. I. Griffen, Grocer, Rutland		
554	John Baer	85	July
	Whitcomb's Store, North Hatfield		
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
112	June Pink	90	May
	O. B. Parks & Co., Westfield		
682	Golden Queen	90	June
	Sinclair Hardware Co., Medford		
	TURNIP		
	THOMAS W. EMERSON CO., Boston, Mass.		
111	Purple Top Strap Leaf	75	May
	O. B. Parks & Co., Westfield		
	FERRY-MORSE SEED CO., Detroit, Mich.		
56	Purple Top	89	May
	Carlisle Hardware Co., West Springfield		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
28	Yellow Globe	85	May
	(Wholesaler's Germination Test 75% or better) (1937)		
	J. Russell & Co., Holyoke		
	BUDD D. HAWKINS, Reading, Vt.		
57	New White Egg	99	May
	Clark Hardware Co., West Springfield		
233	New White German	74	June
	Hanley Hardware Co., Marlboro		
444	New White Sweet German	67	June
	C. I. Bigelow, Grocer, Rutland		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
768	Early Purple Top Strap Leaved	40	June
	Bliss Hardware Co., Plymouth		
	PAGE SEED CO., Greene, N. Y.		
547	Purple Top Strap Leaf	85	July
	(Wholesaler's Germination Test 80%) (1935)		
	Deerfield Hardware Co., South Deerfield		
	WATERMELON		
	FERRY-MORSE SEED CO., Detroit, Mich.		
48	Harris Earliest	95	May
	Carlisle Hardware Co., West Springfield		
	FRASER'S, Wellesley, Mass.		
169	Stone Mountain	96	June
	H. S. Chadbourne Co., Milford		

Type and Variety Studies of Vegetables

Conducted in Conjunction with the Department of Vegetable Gardening
Professor Grant B. Snyder

A large majority of home gardeners buy their vegetable seeds from the neighborhood store. The commercial grower may also buy from this source if he runs short or has forgotten to order a certain crop from his regular seedsman. These various stores and shops in the neighborhood community are, therefore, important sources of garden seeds.

It has been found that in a fair percentage of cases, seed purchased from these sources has been variable in germination and in trueness to name. In order to definitely check the performance of packet and bulk seed sold by these merchants, the Department of Vegetable Gardening has cooperated with the Seed Laboratory in making germination tests and in checking the trueness to name of samples purchased on the open market by state inspectors.

Some 168 lots were included in the field trials, comprising beans, beets, carrots, cucumbers, lettuce, onions, peppers, parsnips, parsley, radishes, spinach, squash, sweet corn, tomatoes, cabbage and turnips.

Field notes on germination indicated fairly good vitality in practically all lots. The various lots were mostly within the type range for the variety specified on the seed packet. The most definite variation was noticed on the root crops of carrots and beets. Some sources of carrots had a definite mixture of types from the short Chantenay through the Nantes to the longer Hutchinson. The beets varied from the top to flat types in the lots of a few of the individual sources.

Seeds with most of these stores are a side line. The person selling them has little or no knowledge of what is being sold other than the information printed on the packet and the price. The conditions under which the seed is stored and displayed are too frequently very poor, resulting in poor germination when planted in the garden. Most of the varieties sold are standard sorts. Newer improved varieties are generally not listed.

In the following tables, unless otherwise noted, the named varieties were within the type range.

Lot No.	Variety and Source	Remarks
	BEANS	
	BARTLETT & DOW CO., Lowell, Mass.	
287	Pencil Pod Black Wax Bartlett & Dow Co., Lowell	
	JOSEPH BRECK & SONS CORP., Boston, Mass.	
184	Long Yellow Six Weeks Bush John A. Geb Hardware Co., Franklin	
	THOMAS W. EMERSON CO., Boston, Mass.	
175	Goddard Bush F. A. Gould Hardware Co., Lowell	
231	Pencil Pod Black Wax Adams Hardware Co., Northboro	
430	Burpee's Bush Lima Lincoln Square Hardware Co., Worcester	
748	Bountiful B. H. Dyer, Provincetown	
749	Low's Champion Bush B. H. Dyer, Provincetown	4% off type
	FERRY-MORSE SEED CO., Detroit, Mich.	
54	Golden Wax Carlisle Hardware Co., West Springfield	
55	Fordhook Lima Carlisle Hardware Co., West Springfield	
	CHARLES C. HART SEED CO., Wethersfield, Conn.	
76	Improved Golden Wax George Methe Co., Springfield	
116	Kentucky Wonder Wax Leominster Hardware Co., Leominster	
158	Stringless Green Pod C. T. Price Co., Athol	
	LAKE SHORE SEED CO., Dunkirk, N. Y.	
307	Burpee's Stringless Green Pod Centralville Hardware Co., Lowell	4% off type
	LEONARD SEED CO., Chicago, Ill.	
582	Dwarf Green Pod F. B. Keene, Amesbury	
	JEROME B. RICE SEED CO., Cambridge, N. Y.	
44	Kentucky Wonder (Green Pod) Wells Hardware Co., Holyoke	
166	Dwarf Horticultural H. S. Chadbourne, Milford	
	S. D. WOODRUFF & SONS, Orange, Conn.	
263	Golden Wax W. E. Aubuchon Hardware Co., Hudson	
	BEETS	
	JOSEPH BRECK & SONS CORP., Boston, Mass.	
677	Crosby's Egyptian Thompson's Flower Store, Lynn	
	THOMAS W. EMERSON CO., Boston, Mass.	
595	Mammoth Long Red W. H. Dewhirst Grain Co., Haverhill	8% off type 3 Swiss Chard
	FERRY-MORSE SEED CO., Detroit, Mich.	
49	Detroit Dark Red Carlisle Hardware Co., West Springfield	12% off type
752	Early Blood Beets Great Atlantic & Pacific Tea Co., Provincetown	16% off type
	CHARLES C. HART SEED CO., Wethersfield, Conn.	
24	Detroit Dark Red J. Russell & Co., Holyoke	12% off type
729	Early Wonder T. W. Pierce Hardware Co., Middleboro	16% off type

Lot No.	Vareity and Source	Remarks
	BEETS — Concluded	
	CHARLES C. HART SEED CO., Wethersfield, Conn.	
154	Detroit Dark Red	10% off type
	C. T. Price & Co., Athol	
212	Early Blood Turnip	20% off type
	Uxbridge Hardware Co., Uxbridge	
	LAKE SHORE SEED CO., Dunkirk, N. Y.	
619	Early Egyptian Blood	8% off type
	J. W. Carter Hardware Co., Manchester	1 Swiss Chard
699	Dewing's Improved	
	J. W. Gove Hardware, Inc., Foxboro	
767	Early Egyptian Blood	16% off type
	Bliss Hardware Co., Plymo th	
	NORTHRUP, KING & CO., Minneapolis, Minn.	
706	Detroit Dark Red	20% off type
	W. C. Fuller Co., Mansfield	
	PEDRICK SEED CO., Pedrickstown, N. J.	
199	Detroit Dark Red	20% off type
	The Continental Nurseries (M. J. Van Leeman), Franklin	
	JEROME B. RICE SEED CO., Cambridge, N. Y.	
152	Crosby's Egyptian	16% off type
	Bengston Hardware Co., Gardner	
743	Detroit Dark Red	
	S. C. M. Packard, Cambridge	
	CABBAGE	
	THOMAS W. EMERSON CO., Boston, Mass.	
640	Stone Mason	
	Salem Hardware Co., Salem	
	FERRY-MORSE SEED CO., Detroit, Mich.	
207	Premium Late Flat Dutch	
	E. A. Landery, Northbridge	
	FRASER'S, Wellesley, Mass.	
129	Danish Ball-head	
	Fitchburg Hardware Co., Fitchburg	
781	Danish Ball-head	
	Sherman Hardware Co., Plymouth	
	FREDONIA SEED CO., Fredonia, N. Y.	
64	Danish Ball-head	
	Clark Hardware Co., West Springfield	
	J. J. H. GREGORY & SON, Marblehead, Mass.	
657	Copenhagen Market	
	J. J. H. Gregory & Son, Marblehead	
	CHARLES C. HART SEED CO., Wethersfield, Co n.	
113	Premium Late Flat Dutch	
	O. B. Parks Co., Westfield	
790	Danish Ball-head	
	J. T. Porter Store, Pembroke	
	LAKE SHORE SEED CO., Dunkirk, N. Y.	
300	Large Flat Dutch	
	Centerville Hardware Co., Lowell	
650	Early Jersey Wakefield	
	W. F. Cloon Hardware, Marblehead	
	NORTHRUP, KING & CO., Minneapolis, Minn.	
148	Copenhagen Market	
	Davis Hardware Co. Gardner	
	JEROME B. RICE SEED CO., Cambridge, N. Y.	
292	Mammoth Red Rock	
	The Smith Hardware Co., Lowell	
785	Late Flat Dutch (Rice's Premium)	
	Kingston Hardware Co., Kingston	
	ROSS BROS. CO., Worcester, Mass.	
438	Danish Ball Head	
	D. M. Hoff (Clover Farm Stores), Rutland	

Lot No.	Variety and Source	Remarks
	CARROTS	
	FERRY-MORSE SEED CO., Detroit, Mich.	
47	Red Cored Chantenay Carlisle Hardware Co., West Springfield	8% off type
754	Zanahoria Carota J. Hilliard Inc., Provincetown	34% off type
	FRASER'S, Wellesley, Mass.	
675	Morse's Bunch Thompson's Flower Store, Lynn	10% off type
	J. J. H. GREGORY & SON, Marblehead, Mass.	
652	Hutchinson Carrot J. J. H. Gregory & Son, Marblehead	12% off type
	CHARLES C. HART SEED CO., Wethersfield, Conn.	
30	Danvers Half Long Stump Root J. Russell & Co., Holyoke	38% off type
615	Danvers Half Long Stump Root C. R. Beaton, Manchester	36% off type
	BUDD D. HAWKINS, Reading, Vt.	
135	Guerande or Ox Heart Grueners Hardware Co., Fitchburg	40% off type
	LAKE SHORE SEED CO., Dunkirk, N. Y.	
646	Danvers Half Long W. T. Cloon Hardware Co., Marblehead	46% off type
668	Chantenay Carota North Shore Hardware Co., Lynn	12% off type
732	Chantenay Carota Ka-Daw-Cut Farm Stores, Middleboro	10% off type
758	Chantenay Carota G. W. Cooper, Plymouth	20% off type
	PAGE SEED CO., Greene, N. Y.	
79	Improved Long Orange George Methe Co., Springfield	10% off type
	ROSS BROS. CO., Worcester, Mass.	
211	Early Chantenay E. A. Landery, Northbridge	8% off type
	F. H. WOODRUFF & SONS, Milford, Conn.	
637	Hutchinson Carrot B. F. Hill Hardware Co., Salem	12% off type
	CORN	
	JOSEPH BRECK & SONS CORP., Boston, Mass.	
183	Golden Bantam Geb Hardware Co., Franklin	
	JEROME B. RICE SEED CO., Cambridge, N. Y.	
165	Golden Giant H. S. Chadbourne Co., Milford	
	CUCUMBER	
	W. ATLEE BURPEE CO., Philadelphia, Pa.	
678	Fordhook Famous Lynn Bird & Seed Store, Lynn	
	FERRY-MORSE SEED CO., Detroit, Mich.	
683	Early Short Green Sinclair Hardware Co., Medford	
686	Early Short Green Great Atlantic & Pacific Tea Co., Wrentham	
719	Boston Pickling Taunton Plumbing & Hardware Co., Taunton	
753	Early White Spine Great Atlantic & Pacific Tea Co., Provincetown	
755	Improved Long Green J. D. Hilliard, Provincetown	

Lot No.	Variety and Source	Remarks
	CUCUMBER—Concluded	
	CHARLES C. HART SEED CO., Wethersfield, Conn.	
29	Improved White Spine J. Russell & Co., Holyoke	
138	Improved White Spine Grueners Hardware Co., Fitchburg	
730	Improved Long Green T. W. Pierce Co., Middleboro	
782	Improved White Spine Sherman Hardware Co., Plymouth	
	LAKE SHORE SEED CO., Dunkirk, N. Y.	
765	Peerless White Spine Bliss Hardware Co., Plymouth	
	NORTHRUP, KING & CO., Minneapolis, Minn.	
798	Improved Long Green Trask Hardware Co., Brockton	
	JEROME B. RICE SEED CO., Cambridge, N. Y.	
716	Early Arlington White Spine Pierce Hardware Co., Taunton	
	ENDIVE	
	BUDD D. HAWKINS, Reading, Vt.	
62	Broad-Leaved Batavian Clark Hardware Co., West Springfield	
	LETTUCE	
	FERRY-MORSE SEED CO., Detroit, Mich.	
52	Black Seeded Simpson Carlisle Hardware Co., West Springfield	
153	White Paris Cos. Bengston Hardware Co., Gardner	4% off type
206	Early Curled Simpson E. A. Landery, Northbridge	
644	Prizehead E. K. Murphy Hardware Co., Marblehead	
673	White Paris Cos Romaine Hutchinson's Hardware Co., Lynn	3% off type
805	Black Seeded Simpson Brockton Hardware Co., Brockton	
	FRASER'S, Wellesley, Mass.	
803	Special White Big Boston Brockton Hardware Co., Brockton	
	J. J. H. GREGORY & SON, Marblehead, Mass.	
656	Gregory Black Seeded Tennis Ball J. J. H. Gregory & Son, Marblehead	
	CHARLES C. HART SEED CO., Wethersfield, Conn.	
32	Iceberg J. Russell & Co., Holyoke	
	HYGRADE SEED CO., INC., Tuckahoe, N. Y.	
59	Iceberg Clark Hardware Co., Springfield	
	LAKE SHORE SEED CO., Dunkirk, N. Y.	
217	Early Curled Silesia Uxbridge Hardware Co., Uxbridge	10% off type
648	Big Boston W. F. Cloon, Marblehead	
759	Hanson Lettuce G. W. Cooper, Plymouth	16% off type
	NORTHRUP, KING & CO., Minneapolis, Minn.	
744	Black Seeded Simpson S. C. M. Packard Co., Wareham	

Lot No.	Variety and Source	Remarks
	LETTUCE—Concluded	
	PAGE SEED CO., Greene, N. Y.	
78	Early Prizehead George Methe Co., Springfield	3% off type
	ROSS BROS. CO., Worcester, Mass.	
608	Simpson Early Curled L. E. Andrews Hardware Co., Gloucester	
761	May King G. W. Cooper, Plymouth	50% off type
	ONIONS	
	JOSEPH BRECK & SONS CORP., Boston, Mass.	
680	White Globe Lynn Bird & Seed Co., Lynn	
	THOMAS W. EMERSON CO., Boston, Mass.	
110	Yellow Globe Danvers O. B. Parks & Co., Westfield	
	FERRY-MORSE SEED CO., Detroit, Mich.	
51	Cebola Cipolla Carlisle Hardware Co., West Springfield	
53	Yellow Globe Carlisle Hardware Co., West Springfield	
612	Southport Yellow Globe J. Raymond Smith Hardware Co., Gloucester	
	CHARLES C. HART SEED CO., Wethersfield, Conn.	
309	Large Red Wethersfield Scott Hardware Co., Lowell	
	LAKE SHORE SEED CO., Dunkirk, N. Y.	
651	Large Red Wethersfield W. F. Cloon Hardware Co., Marblehead	
	LEONARD SEED CO., Chicago, Ill.	
629	Yellow Globe Danvers Winer Bros., Beverly	
	NORTHRUP, KING & CO., Minneapolis, Minn.	
151	Yellow Globe Danvers Aubuchon Hardware Co., Gardner	
168	Large Red Wethersfield H. S. Chadbourne Co., Milford	
293	Yellow Globe Danvers Smith Hardware Co., Lowell	
	PARSLEY	
	CHARLES C. HART SEED CO., Wethersfield, Conn.	
167	Dwarf Moss Curled H. S. Chadbourne, Milford	
	PARSNIPS	
	COMSTOCK-FERRE CO., Wethersfield, Conn.	
624	Long Smooth Whitcomb Carter Co., Beverly	
	THOMAS W. EMERSON CO., Boston, Mass.	
347	Large Smooth Fiske Hardware Co., Natick	
604	Hollow Crown C. J. Gray Hardware Co., Gloucester	
641	Hollow Crown Salem Hardware Co., Salem	
	FRASER'S, Wellesley, Mass.	
674	Hollow Crown Thompson's Flower Store, Lynn	
	J. J. H. GREGORY & SON, Marblehead, Mass.	
669	Hollow Crown (Abbott's) J. J. H. Gregory & Son, Marblehead	

Lot No.	Variety and Source	Remarks

PARSNIPS — Concluded

CHARLES C. HART SEED CO., Wethersfield, Conn.
25 Hollow Crown
J. Russell & Co., Inc., Holyoke

LAKE SHORE SEED CO., Dunkirk, N. Y.
302 Hollow Crown
Centralville Hardware Co., Lowell

PAGE SEED CO., Greene, N. Y.
80 Hollow Crown
George Methe Co., Springfield

S. D. WOODRUFF & SONS, Orange, Conn.
122 Hollow Crown
Farm Service Stores, Leominster

PEPPER

CHARLES C. HART SEED CO., Wethersfield, Conn.
725 California Wonder
Cobb, Bates & Yerxa Co., Taunton

RADISH

FERRY-MORSE SEED CO., Detroit, Mich.
617 Scarlet Globe
C. R. Beaton Hardware Co., Manchester

643 Crimson Giant
E. K. Murphy Hardware Co., Marblehead

FRASER'S, Wellesley, Mass.
214 French Breakfast
Uxbridge Hardware Co., Uxbridge

CHARLES C. HART SEED CO., Wethersfield, Conn.
31 Early Scarlet Globe ..... 12% off type
J. Russell & Co., Holyoke

180 Early White Tipped
Kingman Hardware Co., Franklin

LAKE SHORE SEED CO., Dunkirk, N. Y.
766 Early Red Turnip-White Tipped ..... 16% off type
Bliss Hardware Co., Plymouth

NORTHRUP, KING & CO., Minneapolis, Minn.
149 Long White Icicle
Davis Hardware Co., Gardner

JEROME B. RICE SEED CO., Cambridge, N. Y.
118 Rice's Improved Scarlet Globe
Leominster Hardware Co., Leominster

312 French Breakfast ..... 8% off type
Treat Hardware Co., Lawrence

JEROME B. RICE SEED CO., Cambridge, N. Y.
449 Early Scarlet Turnip White Tipped (Rosy Gem)
Whitmore Hardware Co., Melrose

ROSS BROS. CO., Worcester, Mass.
397 Early Round Scarlet
Waite Hardware Co., Webster

RUTABAGA

CHARLES C. HART SEED CO., Wethersfield, Conn.
200 White Rock
Charles Tebo, Grafton

577 American Purple Top Yellow Ruta Baga
Varrick's Seed Co., Manchester

BUDD D. HAWKINS, Reading, Vt.
57 Ruta Baga
Clark Hardware Co., West Springfield

LAKE SHORE SEED CO., Dunkirk, N. Y.
733 Cavolo Navone
Ka-Daw-Cut Farm Stores, Middleboro

Lot No.	Variety and Source	Remarks

RUTABAGA — Concluded

ROSS BROS. CO., Worcester, Mass.
609 Long Island Improved
L. E. Andrews Hardware Co., Gloucester

SPINACH

BARTLETT & DOW CO., Lowell, Mass.
290 Bloomsdale
Bartlett & Dow Co., Lowell

THOMAS W. EMERSON CO., Boston, Mass.
457 King of Denmark
Essex County Cooperative Farming Association, Topsfield

594 Bloomsdale
W. H. Dewhirst Grain Co., Haverhill

FERRY-MORSE SEED CO., Detroit, Mich.
72 Juliana
Carlisle Hardware Co., West Springfield

635 Giant Thick Leaved
Waters & Brown Hardware Co., Salem

LAKE SHORE SEED CO., Dunkirk, N. Y.
220 Round Leaf
Uxbridge Hardware Co., Uxbridge

337 Round Leaf Tested Hi-Grade
Smith Hardware Co., Reading

JEROME B. RICE SEED CO., Cambridge, N. Y.
119 Bloomsdale Savoy
Leominster Hardware Co., Leominster

SQUASH

THOMAS W. EMERSON CO., Boston, Mass.
578 Warren Turban
Farm Service Stores, Newburyport

596 Blue Hubbard
W. H. Dewhirst Grain Co., Haverhill

FRASER'S, Wellesley, Mass.
618 Warren Turban
C. R. Beaton Hardware Co., Manchester

CHARLES C. HART SEED CO., Wethersfield, Conn.
564 Improved Hubbard
L. L. Peavy Hardware Co., Newburyport

BUDD D. HAWKINS, Reading, Vt.
588 Summer Golden Crookneck
Herman F. Davis, Merrimac

LAKE SHORE SEED CO., Dunkirk, N. Y.
666 True-Vera Hubbard
North Shore Hardware Co., Lynn

F. H. WOODRUFF & SONS, Milford, Conn.
123 Delicious
Farm Service Stores, Leominster

638 Hubbard
B. F. Hill Hardware Co., Salem

SWISS CHARD

FRASER'S, Wellesley, Mass.
127 Broad Rib Green
Fitchburg Hardware Co., Fitchburg

J. J. H. GREGORY & SON, Marblehead, Mass.
661 Lucullus
J. J. H. Gregory & Son, Marblehead

LAKE SHORE SEED CO., Dunkirk, N. Y.
216 Sea Kale Beet or Swiss Chard
Uxbridge Hardware Co., Uxbridge

Lot No.	Variety and Source	Remarks
	TOMATO	
	THOMAS W. EMERSON CO., Boston, Mass.	
605	Bonnie Best C. J. Gray & Sons, Gloucester	
672	Dwarf Champion Hutchinson's Hardware Co., Lynn	
	FREDONIA SEED CO., Fredonia, N. Y.	
63	Livingston's Beauty Clark Hardware Co., Springfield	
	J. J. H. GREGORY & SON, Marblehead, Mass.	
639	Scarlet Topper B. F. Hill Hardware Co., Salem	
	CHARLES C. HART SEED CO., Wethersfield, Conn.	
201	Earliana Charles Tebo, Grafton	
614	Bonnie Best C. R. Beaton Hardware Co., Manchester	
	LAKE SHORE SEED CO., Dunkirk, N. Y.	
301	New Stone Centralville Hardware Co., Lowell	
649	New Stone W. F. Cloon Hardware Co., Marblehead	
664	New Stone North Shore Seed Co., Lynn	
734	Acme Ka-Daw-Cut Farm Stores, Middleboro	
	LEONARD SEED CO., Chicago, Ill.	
628	Earliana Winer Bros. Co., Beverly	
	JEROME B. RICE SEED CO., Cambridge, N. Y.	
112	June Pink O. B. Parks & Co., Westfield	
682	Golden Queen Sinclair Hardware Co., Medford	
	TURNIP	
	CHARLES C. HART SEED CO., Wethersfield, Conn.	
28	Yellow Globe J. Russell & Co., Holyoke	
291	White Egg Smith Hardware Co., Lowell	
	LAKE SHORE SEED CO., Dunkirk, N. Y.	
705	Yellow Globe J. W. Gove Co., Inc., Foxboro	
788	Early Purple Top Strap Leaved Bliss Hardware Co., Plymouth	
	NORTHRUP, KING & CO., Minneapolis, Minn.	
690	Purple Top White Globe Johnson's Hardware Co., Wrentham	

Quality of Onion Seed Produced in The Connecticut Valley, Season of 1936

During the spring months of 1937, twenty-one lots of onion seed produced in the Connecticut Valley were sent to the Seed Laboratory for cleaning and viability tests of the graded clean seed.

The same methods[1] for cleaning were employed as during the spring of 1936 when ten lots of seed were received, cleaned and graded, except that hand threshing of the seed gave place to a home-made mill, designed on the principle of a grist mill, but having wooden disks with contact faces of corrugated rubber in place of stones.

Since the machine used for cleaning employs screens and air blast, only the heaviest seed are cleaned in the first operation. Successive operations with more air on the remaining unclean seed result in several grades of clean seed being obtained from each lot of seed processed. Most lots of seed break down into three grades, but occasionally when the seed is light in weight a fourth grade may be obtained.

The following table shows the weight of the 21 lots of unclean seed as received, the total weight of the cleaned seed, and the weight and viability of each grade obtained by repeated machine separations.

Lots numbered 22, 23, and 24 represent commercial clean seed purchased by one of the local onion growers and loaned to the laboratory for breaking down into grades corresponding to those obtained from the locally produced seed.

The data recorded in this table show that, in most instances, grades 1 and 2 are of very high quality, as judged by viability tests. Grade 3, in most instances, gave a fair test but in no case equal to the two higher grades and with some lots of seed decidedly inferior, so much so as to throw doubt on the wisdom of blending this grade with the others for field use. The three lots of graded commercial seed show differences in viability comparable with grades of locally produced seed.

One ounce of seed from each grade of ten lots of local seed and a like amount of seed from each grade of the commercial lots was sown in the field for a test upon yield, trueness-to-type, and correlation of viability of the seed with proper spacing in the drill. Late planting and an unfavorable season for culture of seed onions made it impossible to draw reliable conclusions from the poor crop of onions grown. It is planned to repeat this experiment in 1938.

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[1]See Massachusetts Agricultural Experiment Station, Control Series, Bulletin No. 86, November, 1936—Page 63.

Lot No.	Weight of Seed		Grade No. 1		Grade No. 2		Grade No. 3		Grade No. 4	
	Before Cleaning Lb.	Clean Seed Lb.	Weight Lb.	Germination Percent	Weight Lb.	Germination Percent	Weight Lb.	Germination Percent	Weight Lb.	Germination Percent
1	66.2	34.9	4.3	99	13.5	96	17.1	78		
2	72.2	45.4	15.8	96	18.	96	11.6	88		
3	8.0	6.1	1.9	96	3.4	95	.8	69		
4	22.1	21.4	10.5	99	8.3	96	2.6	74		
5	21.1	6.3	1.4	93	4.	90	.9	80		
6	183.2	96.2	26.1	98	39.2	97	29.4	84	1.5	58
7	138.5	106.6	42.3	96	42.2	96	20.1	89	2.0	68
8	43.3	23.6	6.7	96	8.8	96	8.1	89		
9	30.2	21.4	5.3	97	8.6	97	7.5	87		
10	53.4	26.3	7.5	94	8.7	87	10.1	73		
11	38.3	34.5	15.0	96	12.9	94	6.6	83		
12	15.0	12.0	5.6	98	4.5	97	1.9	88		
13	27.6	13.3	5.4	97	5.4	96	2.5	68		
14	5.8	1.9	.7	97	.4	88	.8	54		
15	10.0	4.9	.3	82	2.2	51	2.4	21		
16	18.5	17.7	3.2	47	11.6	30	2.9	21		
17	30.0	8.8	4.7	96	1.5	91	1.4	78	1.2	60
18	165.	57.3	16.0	89	13.7	81	11.3	78	16.3	54
19	32.	25.6	12.6	97	9.6	96	3.4	88		
20	115.	84.1	38.5	98	37.4	97	8.2	78		
21	21.	10.8	1.5	98	1.3	98	8.	90		
Total	1116.4	659.1	225.3		255.2		157.6		21.0	
*22		5.0	1.6	92	2.0	85	1.4	85		
*23		5.4	3.1	83	1.6	83	.7	69		
*24		4.7	2.8	90	1.5	84	.4	78		

Studies of Flower Seeds

Conducted by the Seed Laboratory in Cooperation with the Department of Floriculture, Jessie L. Anderson and Professor Clark L. Thayer.

It is a common practice among home flower growers to purchase their seeds from local stores of various kinds. For a second season the Department of Floriculture has cooperated with the Seed Laboratory in an attempt to determine the quality of seed sold by such dealers. The seeds which were collected on the open market by State Seed Inspectors were weighed and analyzed for purity in the laboratory and tested for germination and trueness-to-type under field conditions. Seeds of 103 lots comprised of 44 different kinds of flowers and packeted by 14 different wholesalers were gathered and classified as follows.

Ageratum.....1
Alyssum.....4
Amaranthus.....1
Asters.....3
Batchelor's Buttons.....2
Balsam.....1
Calendula.....3
Candytuft.....2
Canterbury Bells.....2
Chrysanthemum.....2
Cockscomb.....1
Columbine.....1
Cosmos.....5
Dimorphotheca.....1
Lupine.....1
Marigold.....6
Mignonette.....1
Morning Glories.....3
Nasturtiums.....6
Nicotiana.....1
Pansy.....2
Petunia.....5
Phlox.....2
Pimpernel.....1
Poppy.....7
Salpiglossis.....1
Scabiosa.....1
Snapdragon.....4

Forget-me-not	1	Stocks	1
Four O'Clocks	1	Sunflower	2
Foxglove	1	Sweet Peas	6
Gaillardia	1	Sweet William	2
Hollyhocks	2	Verbena	1
Larkspur	1	Wall Flower	1
Lobelia	1	Wonder Packet	1
Lunaria	1	Zinnia	10
		Total	103

Most of the packets bore the common name of the flower, while a few seedsmen added both the scientific and common names. Some listed the color, while others gave no indication as to what color might be expected, although several were marked "mixed" as implied by the following quoted terminology printed on the packets: Mixed, Finest Mixed, All Colors, All Shades, Mixed Colors, Finest Colors, and Finest Mixed Colors. It was noted that the better wholesalers gave much of the desired information, stating the price as well as the approximate germination, the scientific and common names, and some description of the plant together with cultural directions, and the advised dates of sowing.

The entire contents of each packet was weighed and analyzed for purity.

The amount of seed found in any one packet or lot varied from less than one gram (.043 gr.) to 12.773 grams. Several seedsmen failed to state retail prices on packets. In most instances price per packet correlated with the amount of seed contained, taking into consideration the wholesale prices of seed, improved strains usually selling at higher prices than standard varieties and strains which have been on the market for several years.

Mechanical Purity

In an effort to obtain definite information as to the extent to which flower seeds, particularly those sold in sealed paper packets, carried impurities, a careful examination was made of each lot. Purity results will be found in the table.

Of the 103 lots of flower seeds, ten or 9.70% were free of any impurities whatever. To state it in another way, 93 lots or 90.30%, contained impurities in the form of Weed Seeds, Other Crop Seeds, seeds of plants other than the one in question, or Inert Materials consisting of fine chaff, dust, stems, floral parts, grit, or pieces of earth.

The purity percentage was found to vary from 82.65 in the case of one Marigold to 100.00 in the cases of two Cosmos, one Four O'Clock, two Morning Glories, one Sunflower, and four Sweet Peas.

Weed Seeds

Weed seeds were found in 31 of the lots, or 30.09%. One packet of African Marigold contained .71% weed seeds, while a packet of Pimpernel contained 1.60%. These, however, are extreme cases, some packets only containing a very small percentage of weed seeds.

Inert Matter

Of the 103 lots, a total of 93, or 90.30%, contained Inert Matter of one kind or another. Two packets of African Marigold carried the highest percentage,

probably due to the fact that the impurities were of the same general size and weight as the seed itself. One packet carried 17.13% and the other 10%. The presence or absence of impurities may be due in some cases to the ease with which the seeds can be cleaned. Thus Marigolds might be expected to contain a high percentage of Inert, since much of the Inert Material is of the same shape and weight as the seed itself.

Other Crop Seed

Many of the packets contained seeds of flowers other than the kind under consideration, as well as seeds of field crops. Thirty-two, or 31.00%, contained seeds of other crop plants. Two packets of Chrysanthemum ranked high in this particular, with Other Crop Seed in one of them 2.07% and the other 1.65%. Also one packet of Nasturtium carried 2.02%.

The Weed Seeds and Other Crop Seeds found in the various packets may be accounted for in several different ways. Since some of the "extra" seeds were kinds that are not generally found growing with flower seeds in the fields, it appears either that they were placed there intentionally or that they entered through the repacketing process or through careless harvesting and handling methods. This may also be true of the Inert Matter found.

Germination

No germination tests were made in the laboratory on any of the lots collected, since many of the packets contained too small a quantity of seed for both field and laboratory tests. Remarks on germination observed in the field test are comparative and not rated on a percentage basis. After the purity tests were completed the samples were turned over to Professor Clark L. Thayer of the Department of Floriculture, who conducted tests in the field to determine the actual quality and to check the trueness-to-type.

Field Tests

The occurrence of heavy rains shortly after several lots of seed were sown in the field, washed out some of the seed, thus seriously affecting records of germination for these lots. Since there were not sufficient seeds for a second sowing, the tests could not be repeated. However, in the majority of samples germination was satisfactory. Due to the late planting, Sweet Peas did not give good results.

When the number of seeds permitted, rows thirty feet long were sown. Germination was rated as "good" if the seeds germinated in approximately two thirds the row; "fair" between one-third and two-thirds; "poor" for one third or less. Performance was designated as "satisfactory" if the varieties were true to name, producing only a low percentage of plants which were not true to form or color, (one-third or less); "fair" between one-third and two-thirds not true; and "unsatisfactory," if less than one-third was true to name or did not produce satisfactory plants for providing sufficient data.

As far as possible trueness-to-type was determined, but since many lots were described as mixtures or did not carry varietal names, a wide range in color and form was permissible.

FLOWER SEED INSPECTION

Lab. No.	Variety and Source	Purity Tests*				Tests of Performance**		
		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination	Performance	Remarks
	AGERATUM							
485	JEROME B. RICE SEED CO., Cambridge N. Y. Mixed Blues Ford & Parker Co., Dalton	97.98	0.00	2.02	0.00	Good	Fair	
	ALYSSUM							
130	FRASER'S, Wellesley, Mass. Little Gem Fitchburg Hardware Co., Fitchburg	99.61	0.00	0.26	0.13	Good	Satisfactory	
239	CHARLES C. HART SEED CO., Wethersfield, Conn. Little Gem Marlboro Hardware Co., Marlboro	99.30	0.00	0.70	0.00	Good	Satisfactory	
536	MANDEVILLE & KING CO., Rochester, N. Y. Carpet of Snow Levitt & Whitney, Orange	97.61	0.13	1.99	0.27	Fair	Satisfactory	
489	JEROME B. RICE SEED CO., Cambridge, N. Y. Little Gem (Sweet Alyssum) Platt & Goslee, Great Barrington	99.26	0.00	0.74	0.00	Poor	Fair	
	AMARANTHUS							
495	JEROME B. RICE SEED CO., Cambridge, N. Y. Tricolor splendens (Joseph's Coat) J. M. Van Duzen, Stockbridge	99.54	0.34	0.12	0.00	Good	Satisfactory	
	ASTER							
718	FERRY-MORSE SEED CO., Detroit, Mich. Wilt Resistant (Giant Mixed-Crego) Taunton Plumbing & Hardware Co., Taunton	98.67	0.10	1.23	0.00	Poor	Fair	
613	MANDEVILLE & KING CO., Rochester, N. Y. Giants of California (All Colors) J. Raymond Smith, Gloucester	99.42	0.00	0.58	0.00	None		Seed washed out by rain

FLOWER SEED INSPECTION — Continued

Lab. No.	Variety and Source	Purity Tests*				Tests of Performance**		
		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination	Performance	Remarks
	ASTER — Concluded							
	JEROME B. RICE SEED CO., Cambridge, N. Y.							
864	Queen of the Market	99.75	0.00	0.25	0.00	Fair	Fair	
	DeWolf & Vincent, Bedford							
	BACHELOR'S BUTTON							
	JOSEPH BRECK & SONS CORP, Boston, Mass.							
775	Blue	97.53	0.46	1.55	0.46	Good	Satisfactory	
	J. E. Jordan Co., Plymouth							
	MANDEVILLE & KING CO., Rochester, N. Y.							
164	Blue	99.60	0.10	0.20	0.10	Good	Satisfactory	
	A. V. Stewart Estate, Athol							
	BALSAM							
	CHARLES C. HART SEED CO., Wethersfield, Conn.							
523	Choice Double Mixed Colors	99.17	0.14	0.69	0.00	Fair	Satisfactory	
	S. Allen & Sons, Greenfield							
	CALENDULA							
	FERRY-MORSE SEED CO., Detroit, Mich.							
484	Orange King	99.36	0.00	0.64	0.00	Good	Satisfactory	
	C. G. Glennan Co., Dalton							
862	Orange King	99.08	0.00	0.92	0.00	Fair	Satisfactory	
	Sears Roebuck Co., Norwood							
	CHARLES C. HART SEED CO., Wethersfield, Conn.							
205	Orange King	94.62	0.44	4.94	0.00	None		
	Charles Tebo, Grafton							
	CANDYTUFT							
	MANDEVILLE & KING CO., Rochester, N. Y.							
313	Mixed	99.38	0.03	0.59	0.00	Fair	Satisfactory	Good variety of colors
	Treat Hardware Co., Lawrence							

543	ROSS BROS. CO., Worcester, Mass. Mixed E. E. Putnam, South Deerfield	99.66	0.14	0.20	0.00	Poor	Fair	
	CANTERBURY BELLS							
559	MANDEVILLE & KING CO., Rochester, N. Y. All colors L. L. Peavey Hardware Co., Newburyport	97.62	0.00	2.18	0.20	None		Washed out by rain
704	NORTHRUP, KING & CO., Minneapolis, Minn. Campanula (Single Mixed) W. C. Fuller & Co., Mansfield	98.22	0.00	1.56	0.22	None		Washed out by rain
	CHRYSANTHEMUM							
346	THOMAS W. EMERSON CO., Boston, Mass. Double Mixed Pebco Hardware Co., Wellesley	96.02	0.06	1.85	2.07	Good	Satisfactory	
711	LAKE SHORE SEED CO., Dunkirk, N. Y. Mixed W. C. Fuller & Co., Mansfield	96.02	0.10	2.23	1.65	Fair	Satisfactory	
	COCKSCOMB							
554	PAGE SEED COMPANY, Greene, N. Y. Plumosa and Cristata Mixed D. F. Riley, North Hatfield	98.80	0.00	0.69	0.51	Good	Satisfactory	
	COLUMBINE							
726	MANDEVILLE & KING CO., Rochester, N. Y. Mrs. Scott Elliott's (All colors) Cobb, Bates & Yerxa, Taunton	99.80	0.00	0.20	0.00	None		
	COSMOS							
128	FRASER'S, Wellesley, Mass. Klondike Orange Flare Fitchburg Hardware Co., Fitchburg	100.00	0.00	0.00	0.00	Good	Satisfactory	
209	Klondike Orange Flare E. A. Landery, Northbridge	96.57	0.00	3.20	0.23	Good	Satisfactory	
691	CHARLES C. HART SEED CO., Wethersfield, Conn. Giant Early Flowering (Mixed Colors) Johnson Hardware Co., Wrentham	99.13	0.04	0.79	0.04	Good	Satisfactory	

FLOWER SEED INSPECTION — Continued

Lab. No.	Variety and Source	Purity Tests* Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Tests of Performance** Germination	Performance	Remarks
	COSMOS — Concluded							
394	MANDEVILLE & KING CO., Rochester, N. Y. Klondike Orange Flare. Waite Hardware Co., Webster	98.71	0.00	1.29	0.00	Good	Satisfactory	
230	JEROME B. RICE SEED CO., Cambridge, N. Y. Early Klondike Orange Flare. Adams Hardware Co., Northboro	100.00	0.00	0.00	0.00	Good	Satisfactory	
	DAISY							
689	MANDEVILLE & KING CO., Rochester, N. Y. African—All colors. Johnson Hardware Co., Wrentham	95.37	0.00	4.63	0.00	Poor	Fair	
	FORGET-ME-NOT							
746	JEROME B. RICE SEED CO., Cambridge, N. Y. Forget-me-not. Church & Stockwell, Wareham	98.64	0.19	0.98	0.19	None		
	FOUR O'CLOCKS -- MARVEL OF PERU							
185	FRASER'S, Wellesley, Mass. Mirabilis jalapa. John A. Geb Hardware Co., Franklin	100.00	0.00	0.00	0.00	Good	Satisfactory	Good variety of colors
	FOXGLOVE (Digitalis)							
804	JEROME B. RICE SEED CO., Cambridge, N. Y. Finest Mixed. Brockton Hardware Co., Brockton	99.78	0.00	0.22	0.00	None		
	GAILLARDIA							
120	MANDEVILLE & KING CO., Rochester, N. Y. All Shades. Leominster Hardware Co., Leominster	97.15	0.00	2.67	0.18	None		

HOLLYHOCKS

208	FRASER'S, Wellesley, Mass. Finest Double and Single (Mixed) E. A. Landery, Northbridge	98.91	0.00	1.09	0.00	Poor	Unsatisfactory	Biennial; did not bloom
71	MANDEVILLE & KING CO., Rochester, N. Y. Double Yellow Carlisle Hardware Co., West Springfield	98.72	0.00	1.28	0.00	Poor	Unsatisfactory	Biennial; did not bloom

LARKSPUR

697	CHARLES C. HART SEED CO., Wethersfield, Conn. Finest Mixed Reade Hardware Co., Foxboro	99.49	0.06	0.45	0.00	Poor	Fair	

LOBELIA DWARF

645	MANDEVILLE & KING CO., Rochester, N. Y. Crystal Palace Compacta E. K. Murphy, Marblehead	97.72	0.00	2.28	0.00	Poor	Fair	

LUNARIA

606	FERRY-MORSE SEED CO., Detroit, Mich. Biennis, White C. J. Gray & Sons, Inc., Gloucester	99.39	0.00	0.61	0.00	Fair	Unsatisfactory	Biennial did not bloom

LUPIN TEXENSIS

728	MANDEVILLE & KING CO., Rochester, N. Y. Texas Blue Bonnet T. A. Pierce Hardware Co., Middleton	94.75	0.43	4.83	0.00	Poor	Unsatisfactory	Did not bloom

MARIGOLD

865	JOSEPH BRECK & SONS CORP., Boston, Mass. Tall African Mixed DeWolf & Vincent, New Bedford	90.05	0.71	9.24	0.00	Good	Satisfactory	
432	THOMAS W. EMERSON CO., Boston, Mass. Tall African Lincoln Square Hardware Co., Worcester	96.75	0.00	3.25	0.00	Good	Satisfactory	
493	CHARLES C. HART SEED CO., Wethersfield, Conn. Tall African, Double Eldorado F. H. Turner & Co., Great Barrington	96.81	0.00	3.19	0.00	Good	Satisfactory	

FLOWER SEED INSPECTION — Continued

Lab. No.	Variety and Source	Purity Tests*				Tests of Performance**		
		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination	Performance	Remarks
	MARIGOLD — Concluded							
745	Dwarf French Double..... Church & Stockwell, Wareham	91.23	0.00	8.60	0.17	Fair	Fair	
60	HYGRADE SEED CO., INC., Tuckahoe, N. Y. African Tall, Double Mixed..... Clark Hardware Co., West Springfield	82.65	0.00	17.13	0.22	None		
341	MANDEVILLE & KING CO., Rochester, N. Y. Yellow Supreme—All American Winner..... J. H. Chandler & Sons, Newton Center	90 00	0.00	10.00	0.00	Fair	Fair	
	MIGNONETTE							
736	LAKE SHORE SEED CO., Dunkirk, N. Y. Large Flowering Sweet..... Ka-Daw-Cut Farm Stores, Middleboro	95.97	0.12	2.21	0.70	Poor	Fair	
	MORNING GLORY							
121	MANDEVILLE & KING CO., Rochester, N. Y. All colors..... Leominster Hardware Co., Leominster	99.78	0.00	0.22	0.00	Good	Satisfactory	Good variety of colors
611	Heavenly Blue Improved..... L. E. Andrews Co., Gloucester	100.00	0.00	0.00	0.00	Good	Satisfactory	
760	All colors..... G. W. Cooper, Plymouth	100.00	0.00	0.00	0.00	Good	Satisfactory	Good variety of colors
	NASTURTIUM							
255	FERRY-MORSE SEED CO., Detroit, Mich. Golden Globe..... Sears Roebuck Co., Framingham	99.37	0.00	0.63	0.00	Fair	Satisfactory	
238	FRASER'S, Wellesley, Mass. Nicotiana Sanderae Hybrids..... Marlboro Hardware Co., Marlboro	99.45	0.08	0.47	0.00	Good	Satisfactory	Good variety of colors

	FREDONIA SEED CO., Fredonia, N. Y.							
517	Tall Mixed	95.64	0.00	4.36	0.00	Fair	Satisfactory	Good variety of colors
	E. M. Gulow & Co., Turners Falls							
	LAKE SHORE SEED CO., Dunkirk, N. Y.							
219	Tall Mixed Colors	97.06	0.00	0.92	2.02	None		
	Uxbridge Hardware Co., Uxbridge							
	MANDEVILLE & KING CO., Rochester, N. Y.							
688	All Colors (Climbing)	98.84	.011	1.16	0.00	Poor	Fair	
	Johnson Hardware Co., Wrentham							
752	Sweet Scented—Golden Gleam, Double	99.57	0.00	.043	0.00	Fair	Satisfactory	
	C. L. Burch Co., Provincetown							
	JEROME B. RICE SEED CO., Cambridge, N. Y.							
480	Dwarf	99.96	0.00	0.04	0.00	Good	Satisfactory	
	R. E. Faulkner & Co., Palmer							
	PANSY							
	FERRY-MORSE SEED CO., Detroit, Mich.							
721	Superb, Giant Mixed	99.36	0.00	0.64	0.00	Poor	Unsatisfactory	
	Waldron Hardware Co., Taunton							
	NORTHRUP, KING & CO., Minneapolis, Minn.							
558	Giant Fancy	99.40	0.00	0.60	0.00	Fair	Satisfactory	
	L. L. Peavey Hardware Co., Newburyport							
	PETUNIA							
	THOMAS W. EMERSON CO., Boston, Mass.							
750	Violet Blue	98.18	0.30	0.91	0.61	Fair	Satisfactory	
	B. H. Dyer & Co., Hardware, Provincetown							
	CHARLES C. HART SEED CO., Wethersfield, Conn.							
486	Rosy Morn	98.20	0.26	1.54	0.00	Fair	Satisfactory	
	Commercial Hardware & Paint Co., Adams							
692	Hybrida Finest, Mixed Colors	96.67	0.19	2.96	0.18	Poor	Fair	
	Johnson Hardware Co., Wrentham							
	MANDEVILLE, KING & CO., Rochester, N. Y.							
252	Giants of California, Ruffled and Fringed Dwarf	95.12	0.00	4.88	0.00	Poor	Fair	
	Vandusers Hardware Co., Framingham							
860	Heavenly Blue	92.96	0.39	6.26	0.39	Fair	Satisfactory	
	E. J. Keelan, Dedham							

FLOWER SEED INSPECTION — Continued

Lab. No.	Variety and Source	Purity Tests* Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Tests of Performance** Germination	Performance	Remarks
	PHLOX DRUMMONDI							
	MANDEVILLE & KING CO., Rochester, N. Y.							
170	All colors. . . . . H. S. Chadbourne Co., Milford	95.02	0.17	4.81	0.00	Fair	Satisfactory	
789	All colors. . . . . Sweetser's General Store, Duxbury	95.78	0.15	3.93	0.14	Fair	Satisfactory	
	PIMPERNEL							
	MANDEVILLE & KING CO., Rochester, N. Y.							
242	Scarlet and Other Colors. . . . . Lamson Hardware Co., Marlboro	96.40	1.60	2.00	0.00	Poor	Fair	
	POPPY							
	FRASER'S, Wellesley, Mass.							
271	Shirley Hybrids . . . . . McPherson's Hardware Co., Maynard	99.80	0.00	0.20	0.00	Good	Satisfactory	Good variety of colors
	FERRY-MORSE SEED CO., Detroit, Mich.							
67	Double Choice, Mixed. . . . . Carlisle Hardware Co., West Springfield	99.77	0.00	0.23	0.00	Fair	Satisfactory	60% double forms
544	Iceland Mixed. . . . . Deerfield Hardware Co., South Deerfield	98.35	0.00	1.65	0.00	Poor	Unsatisfactory	Not an annual
	CHARLES C. HART SEED CO., Wethersfield, Conn.							
696	Shirley Mixed. . . . . Reade Hardware Co., Foxboro	98.08	0.09	1.46	0.37	Fair	Satisfactory	Good variety of colors
	MANDEVILLE & KING CO., Rochester, N. Y.							
160	All colors, Single Iceland. . . . . C. F. Page & Co., Athol	99.87	0.00	0.13	0.00	Fair	Satisfactory	Not an annual 3 plants bloomed
450	California Poppy . . . . . Whitmore Hardware Co., Melrose	96.21	0.38	3.27	0.14	Poor	Fair	
863	Flanders Field . . . . . Norwood Hardware Supply Co., Norwood	98.74	0.11	1.15	0.00	Poor	Unsatisfactory	

	SALPIGLOSSIS							
774	MANDEVILLE & KING CO., Rochester, N. Y. All colors J. E. Jordan Co., Plymouth	94.55	0.23	4.54	0.68	None		
	SCABIOSA							
204	CHARLES C. HART SEED CO., Wethersfield, Conn. Mourning Bride Mixed Charles Tebo, Grafton	98.52	0.00	1.48	0.00	Poor	Fair	
	SNAPDRAGON							
709	MANDEVILLE & KING CO., Rochester, N. Y. Rust-proof, All colors H. A. Wheeler & Co., Mansfield	98.90	0.00	0.94	0.16	None		
756	Rust-proof, All colors J. D. Hilliard Co., Provincetown	99.49	0.00	0.51	0.00	None		
861	Rust-proof E. J. Kellan, Dedham	99.14	0.00	0.86	0.00	Good	Fair	
720	NORTHRUP, KING & CO., Minneapolis, Minn. All colors mixed Waldron Hardware Co., Taunton	99.20	0.11	0.69	0.00	None		Washed out by rain
	STOCK							
702	LAKE SHORE SEED CO., Dunkirk, N. Y. German Dwarf Mixed J. W. Gove Hardware Co., Foxboro	96.45	0.00	2.13	1.42	None		
	SUNFLOWER							
68	FERRY-MORSE SEED CO., Detroit, Mich. Red and Gold Carlisle Hardware Co., West Springfield	98.95	0.00	1.05	0.00	Good	Satisfactory	Good variety of colors
349	CHARLES C. HART SEED CO., Wethersfield, Conn. Mammoth Russian Fiske Hardware Co., Natick	100.00	0.00	0.00	0.00	Good	Satisfactory	10-14 feet in height

FLOWER SEED INSPECTION — Continued

Lab. No.	Variety and Source	Purity Tests* Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Tests of Performance** Germination	Performance	Remarks
	SWEET PEAS							
858	CHARLES C. HART SEED CO., Wethersfield, Conn. Spencer, Mixed Colors. Chase Hardware Co., Dedham	100.00	0.00	0.00	0.00			Not sown; seed received 7/12/37
710	LAKE SHORE SEED CO., Dunkirk, N. Y. Mixed Colors. J. A. Fuller & Co., Mansfield	100.00	0.00	0.00	0.00	Poor	Unsatisfactory	Seed sown too late for good results
735	Red. Ka-Daw-Cut Farm Stores, Middleboro	99.96	0.00	0.04	0.00	Poor	Unsatisfactory	Seed sown too late for good results
161	MANDEVILLE & KING CO., Rochester, N. Y. Spencer, All colors. C. F. Page & Co., Athol	99.98	0.00	0.02	0.00	Poor	Unsatisfactory	Seed sown too late for good results
751	Grandiflora, All colors. C. L. Burch Co., Provincetown	100.00	0.00	0.00	0.00	Fair	Unsatisfactory	Seed sown too late for good results
241	PAGE SEED CO., Greene, N. Y. Spencer Mixed (Page's Supreme). Lamson Hardware Co., Marlboro	100.00	0.00	0.00	0.00	Poor	Unsatisfactory	Seed sown too late for good results
	SWEET WILLIAM							
676	JOSEPH BRECK & SONS CORP., Boston, Mass. Single Mixed. Thompson's Flower Shop, Lynn	98.88	0.00	1.12	0.00	None		Washed out by rain
69	FERRY-MORSE SEED CO., Detroit, Mich. Single Fine Mixed. Carlisle Hardware Co., West Springfield	98.97	0.00	0.92	0.11			

VERBENA

	FERRY-MORSE SEED CO., Detroit, Mich.							
310	Fine Mixed Scott's Hardware Co., Lowell	96.92	0.16	2.92	0.00	Fair	Satisfactory	Good variety of colors

WALLFLOWER

	MANDEVILLE & KING CO., Rochester, N. Y.							
433	Wallflower (Single—All colors) Lincoln Square Hardware Co., Worcester	99.25	0.00	0.75	0.00	Fair		Later flooded by rain

WONDER PACKET

	MANDEVILLE & KING CO., Rochester, N. Y.							
722	Nearly Seven Times Seven Wonders of Flower World Waldron Hardware Co., Taunton	98.20	0.00	1.80	0.00	Good	Satisfactory	Mixture of annuals

ZINNIA

	W. ATLEE BURPEE CO., Philadelphia, Pa.							
679	Mexicana (Haageana) Lynn Bird & Seed Co., Lynn	94.30	0.00	5.70	0.00	Fair	Satisfactory	Good Mixture
	FRASER'S, Wellesley, Mass.							
215	Dahlia Flowered Canary Bird Uxbridge Hardware Co., Uxbridge	98.93	0.00	0.95	0.12	Good	Satisfactory	70% double; one pink flowered form
727	Dahlia Flowered Canary Bird T. W. Pierce Hardware Co., Middleboro	99.07	0.00	0.83	0.10	Good	Satisfactory	70% double
859	Canary Bird Yellow Chase Hardware Co., Dedham	98.79	0.00	1.10	0.11	Good	Satisfactory	
	FERRY-MORSE SEED CO., Detroit, Mich.							
561	Giant Dahlia Flowered Mixed D. Cashman Hardware Co., Newburyport	98.79	0.00	1.21	0.00	Good	Satisfactory	70% double; good variety of colors. Good mixture
685	Giant Dahlia Flowered Mixed Great Atlantic & Pacific Tea Co., Wrentham	99.00	0.00	1.00	0.00	Good	Satisfactory	66% double; good variety of colors

FLOWER SEED INSPECTION — Concluded

Lab. No.	Variety and Source	Purity Tests*				Tests of Performance**		
		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination	Performance	Remarks
	ZINNIA — Concluded							
58	HYGRADE SEED CO., INC., Tuckahoe, N. Y. California Giants Mixed Clark Hardware Co., West Springfield	96.89	0.00	2.81	0.30	Poor	Fair	85% double; good variety of colors
244	MANDEVILLE & KING CO., Rochester, N. Y. Lilliput, All colors H. L. Sawyer Hardware Co., Framingham	97.52	0.00	2.48	0.00	Good	Satisfactory	Good variety of colors
478	Rosebud Pompon W. C. Ring, Palmer	96.55	0.00	2.52	0.93	Good	Fair	40% double
497	NORTHRUP, KING & CO., Minneapolis, Minn. Dahlia Flowered, Mixed Phelan Hardware Co., Lee	96.92	0.00	3.08	0.00	Good	Fair	50% double; good variety of colors

*Purity tests were made in the Seed Laboratory by Jessie L. Anderson.
**Tests of performance were made in the field by Professor Clark L. Thayer of the Floriculture Department.

PUBLICATION OF THIS DOCUMENT APPROVED BY THE COMMISSION ON ADMINISTRATION AND FINANCE
2500—3-'38. No. 3323

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

CONTROL SERIES BULLETIN No. 93 JUNE, 1938

Eighteenth Annual Report on Eradication of Pullorum Disease in Massachusetts

By the Poultry Disease Control Laboratory

The 1937-38 testing results, reported in this bulletin, reveal steady progress in pullorum disease eradication. A marked increase was observed in the number of tested birds and tests over the previous season. However, the outstanding features of the 1937-38 season are the further reduction in the average percentage of positive tests and the increase in the number of non-reacting flocks. It is encouraging to note that poultrymen realize the significance of pullorum clean flocks and are exercising the necessary precautions to maintain free flocks.

MASSACHUSETTS STATE COLLEGE
AMHERST, MASS.

EIGHTEENTH ANNUAL REPORT ON PULLORUM DISEASE ERADICATION IN MASSACHUSETTS

1937-1938

By the Poultry Disease Control Laboratory[1]

INTRODUCTION

The establishment and maintenance of pullorum clean flocks are recognized as essential and profitable features in poultry production by Massachusetts poultrymen. The identification of pullorum clean flocks is accomplished through the annual testing of all the birds on the premises. During the course of the eighteen-year testing period a large number of pullorum clean flocks have been established and identified. This increasing reservoir of pullorum clean stock serves to replace untested and infected flocks.

The progress that has been made during this eighteen-year testing period should be credited in a large measure to the flock owners who have cooperated in employing sound measures for the establishment and maintenance of pullorum clean flocks. To-day the majority of the owners of breeding flocks have no worry from losses due to pullorum disease. Furthermore, if adequate preventive measures are followed, these owners may anticipate no reactors in their flocks as they are tested annually. As this program continues through a period of time, the residual infection will become less and less so that some day the disease will no longer be an economic problem.

To attain this goal will require the continued conscientious cooperation of the flock owners and all agencies which have an interest in the poultry industry. The progress of this work can be greatly expedited through a broad, far-reaching educational program. Sound advertising on the part of the seller of stock and careful investigation by the buyer will aid in greater distribution of pullorum clean stock.

Summary of Service Rendered

Applications received	321
Applications cancelled	7
Flocks tested	314*
Number of tests	502,341**
Chickens:—	
Routine	495,759
Experimental	2,010
Fowl other than chickens:—	
Routine	1,660
Experimental	2,912**
Owners receiving necropsy service	28
Necropsies of reacting birds	94

*Includes 6 flocks of poultry other than chickens.
**Includes 216 paratyphoid tests

[1]Poultry Disease Control Laboratory Staff: — H. Van Roekel, Chief of Laboratory; K. L. Bullis, Assistant Veterinary Pathologist; O. S. Flint, Assistant Research Professor; Miriam K. Clarke, Research Assistant; Felicia Jewett, Laboratory Assistant. Appreciation is extended to Dr. J. B. Lentz, Head of the Department of Veterinary Science, for the administrative assistance given to the testing work.

TABLE 1. DISTRIBUTION OF TESTS AND REACTORS BY COUNTIES AND BY BREEDS

Breed		Barnstable	Berkshire	Bristol	Essex	Franklin	Hampden	Hampshire	Middlesex	Norfolk	Plymouth	Worcester	Totals	Percent Positive Tests
Rhode Island Reds	Total tests	3,376	4,995	50,811	25,652	31,786	14,907	19,127	56,038	112,625	25,650	64,195	409,162	
	Positive tests	0	98	81	8	16	13	6	239	142	27	20	650	0.16
Barred Plymouth Rocks	Total tests	309	834	4,395	2,767	5,241	1,131	569	10,703	6,938	6,266	5,746	44,899	
	Positive tests	0	4	0	0	16	0	2	0	5	0	1	28	0.06
White Plymouth Rocks	Total tests	....	184	3,221	979	....	....	744	4,245	1,295	8,670	463	19,801	
	Positive tests	....	0	0	0	....	....	0	0	0	0	0	0	0.00
White Leghorns	Total tests	....	4,921	700	766	270	....	89	....	1,350	....	347	8,443	
	Positive tests	....	28	0	0	32	....	0	....	0	....	1	61	0.72
New Hampshires	Total tests	....	1,788	....	893	2,511	50	73	419	....	1,411	4,625	11,770	
	Positive tests	....	90	....	0	0	0	0	0	....	2	0	92	0.78
Miscellaneous	Total tests	....	....	250	601	244	23	33	494	1,625	....	424	3,694	
	Positive tests	....	....	0	2	0	0	0	1	2	....	15	20	0.54
Total Tests		3,685	12,722	59,377	31,658	40,052	16,111	20,635	71,899	123,833	41,997	75,800	497,769	
Positive Tests	Number	0	220	81	10	64	13	8	240	149	29	37	851	
	Percent	0.00	1.73	0.14	0.03	0.16	0.08	0.04	0.33	0.12	0.07	0.05		0.17

Distribution of Tests and Reactors

Table 1 gives the number of tests and reactors for each breed and each county. Eleven counties received testing service during the season. A total of 497,769 samples was tested, which is the largest number during any one season of the 18-year testing period.

The average percentage of positive tests for the State was 0.17, which is a new low record. In Barnstable County no reactors were found among the flocks tested. All counties but one had less than one-half of 1% positive tests among the samples tested. Norfolk, Worcester, and Plymouth Counties led in the number of tested samples. One breed, White Plymouth Rocks, revealed no reactors. Of the total number of samples tested, 454,476 were from females and 43,293 from males. Of these 0.18 and 0.09% respectively, were positive.

Annual Testing Essential in the Establishment and Maintenance of Pullorum Clean Flocks

Annual testing of all birds on the premises is recognized as essential in the establishment and maintenance of pullorum clean flocks. The true pullorum disease status of a flock cannot be determined unless all birds on the premises are tested. Annual testing is recognized as a means to identify pullorum clean flocks and also to determine whether or not pullorum infection has been introduced into previously clean flocks. During the last ten years Massachusetts poultrymen have experienced the importance of annual testing in order to expedite the eradication of the disease from their flocks.

In Table 2 are given comparative results on flocks tested for the first time, flocks tested intermittently, flocks tested for two consecutive years, and flocks tested for three or more consecutive years.

The number of flocks tested for the first time was 55, representing 39,775 tests, of which 1.14% were positive. This group revealed 45 non-reacting flocks, of which 29 were 100% tested.

There were 27 flocks in the intermittent tested group. The total number of tests for this group was 27,135, of which 0.07% were positive. Only one positive flock was detected in this group.

The flocks tested for two consecutive years numbered 48, and represented 52,582 tests, of which 0.24% were positive. In this group, 45 flocks (39 were 100% tested) were non-reacting.

TABLE 2. ANNUAL TESTING VERSUS SINGLE AND INTERMITTENT TESTING

Classification	Flocks	Birds	Total Tests	Positive Tests		Negative Flock		Positive Flocks	
				Number	Percent	100% Tested	Partially Tested	100% Tested	Partially Tested
Tested for the first time	55	39,585	39,775	452	1.14	29	16	6	4
Intermittent testing	27	26,518	27,135	18	0.07	20	6	1	0
Two consecutive years	48	50,935	52,582	127	0.24	39	6	1	2
Three or more consecutive years	178	363,189	378,277	254	0.07	153	17	7	1
Totals	308	480,227	497,769	851	0.17	241	45	15	7

In the group tested for three or more consecutive years, 178 flocks were tested, representing 378,277 tests of which 0.07% were positive. The number of non-reacting flocks was 170, of which 153 were 100% tested.

From the above data it may be concluded that greatest progress in pullorum disease eradication has been made in flocks tested for three or more consecutive years. Of the total birds (480,227) tested, 75.6% were in the group tested for three or more consecutive years. Of the total negative flocks (286) detected, 170 or 59.4% were in the group tested for three or more consecutive years. The number of flocks and birds in this group is steadily increasing from year to year and the percentage of infection is gradually becoming smaller. Likewise, a gradual increase is observed among the non-reacting flocks in this group.

Among the 308 flock owners who received testing service, 256, or 83.1% had all the birds on their premises tested. Of the total birds tested (480,227), 95.2% are in flocks which passed a negative test.

Twenty-two flocks were classified as positive, representing 22,761 birds. The number of flocks and birds for this group is less than the previous year. The group of flocks tested for the first time leads in the number of positive tests. A comparison of the different groups shows that in the first-year group the range of infection for the flocks falls in higher levels than is the case for the other groups. Table 3 shows the range of infection.

TABLE 3. RANGE OF INFECTION IN THE POSITIVE FLOCKS

Range of Infection Percent	Flocks Tested for First Time	Flocks Tested Intermittently	Flocks Tested for Two Consecutive Years	Flocks Tested for Three or More Consecutive Years
0– 1		1	1	4
1– 2	2		1	2
2– 3	3		1	
3– 4				1
4– 5	1			
5–10	2			
10–20				1
20 or more	2			
Totals	10	1	3	8
Percentage of Total Flocks Tested in Each Group	18.18	3.70	6.25	4.49

Fifty-two flocks, or 16.8% of the total flocks tested, were partially tested. As has been stated earlier, the true status of a flock cannot be determined unless all the birds on the premises are tested. Furthermore, partially tested flocks cannot qualify for the official pullorum tested grades that are recognized by the Massachusetts Department of Agriculture. It is hoped that all flock owners will see the wisdom of testing all birds on the premises so that they may operate their plants with greater security against infection.

Appearance of Infection in Flocks Previously Negative

During the past year infection was detected in six flocks which were negative the previous season. While the number of "breaks" may seem small in comparison with the total number of flocks tested, the significance of this re-infection should not be minimized. These cases point out the necessity of annual testing. The data in Table 4 show that in all but one flock the percentage of reactors was less than one. In this one flock the infection was attributed to the practice of custom hatching for miscellaneous flocks and to the purchase of questionable stock. Flock 6 derived its infection from a contest bird. In this case the owner fortunately maintained the contest birds in isolation and quarantine until their status was determined. The origin of infection in Flock 3 was not definitely determined, in view of the fact that complete information concerning management practices was not received. The source of infection in Flocks 1, 2 and 4 is classified as unknown, since the owners could not recall any possible mismanagement that might permit infection to enter.

The fact that in five cases the amount of infection was very small suggests that the disease was introduced onto the premises after the chicks were removed from the incubator. It further points out that little or no dissemination of the disease occurred after its introduction into the flock.

TABLE 4. APPEARANCE OF INFECTION IN FLOCKS PREVIOUSLY NEGATIVE

Flock	Number of Years Negative	1937–38 Season			Explanation for Infection
		Flock Total	Number Tested	Positive Tests Percent	
1	2	721	720	0.56	Unknown
		720	*98	0.00	
2	7	2,804	2,703	0.07	Unknown
		2,561	*2,560	0.00	
3	1	1,024	1,024	0.10	Undetermined
		1,253	*1,253	0.80	
		1,131	*1,130	0.71	
		1,022	*1,021	0.00	
		989	*989	0.00	
4	6	993	993	0.10	Unknown
		879	*878	0.57	
5	1	820	820	8.90	Combination of Sources
		704	*703	1.85	
6	1	3,709	3,708	0.05	Contest bird
		3,706	*15	0.00	

*Represents retests

These findings should impress strongly upon the minds of poultry breeders that one cannot be too careful in observing the following control, eradication, and prevention measures.

1. All birds on the premises should be tested annually.
2. If infection is present, the entire flock should be retested within four to six weeks until a negative report is obtained, provided the value of the birds justifies the expenditure for testing.
3. Every reactor, regardless of its value, should be removed from the premises and sold for slaughter immediately upon receipt of the report.

4. The poultry houses, runs, and equipment should be thoroughly cleaned and disinfected immediately after removal of reactors. An empty pen in each house may facilitate cleaning and disinfection during winter months. Disinfectants approved by the United States Department of Agriculture should be used.

5. Offal from all birds dressed for market or home consumption as well as dead birds that are not fit for consumption should be burned.

6. Birds removed from the premises to egg-laying contests, exhibitions, etc., should be held in quarantine and determined free from disease before they are re-admitted into the flock.

7. Purchase of stock in the form of adults, chicks, and eggs should be from officially recognized pullorum disease-free flocks.

8. Eggs should not be saved for hatching until after a flock has been tested and all the infected birds removed. Early pullet testing will permit early hatching.

9. Fresh and infertile eggs from unknown or infected sources should not be fed to chickens or exposed to other animals that may carry or spread the infection.

10. Poultrymen should not custom-hatch for untested or infected flocks.

11. Owners of pullorum disease-free flocks should not have hatching done where infected eggs or stock may be found.

12. Poultrymen should not buy feed in bags that have been used or exposed to infection. (Such bags if properly disinfected will be safe for further use.)

13. Poultrymen should not use equipment that has been exposed to or contaminated with infective material unless it is properly cleaned and sterilized or disinfected.

Non-Reacting and Positive Flocks Classified by Counties

Table 5 gives the number of non-reacting and positive flocks classified by counties. A total of 241 flocks (100% tested), representing 432,919 birds, was identified in 11 counties. The bird population in these flocks is equal to approximately 17% of the total poultry population (birds three months or older) for Massachusetts. At the present time the Massachusetts poultry industry is in a position to replace its total poultry population from 100% tested, non-reacting flocks. Since there is an adequate supply of non-reacting stock to draw from for replacements, it is recommended that purchases be directed toward such sources of pullorum clean stock in order to expedite further elimination of the disease within the State. Within recent years it has been observed that it is less difficult and less expensive to establish a pullorum clean flock through the purchase of stock from officially recognized clean sources than by means of intensive testing (testing at four-week intervals until no more reactors are detected). Of course, in establishing a pullorum free flock through replacements with clean stock, one must recognize the importance of preventing the new stock from being exposed to infection. Success cannot be anticipated if proper control, eradication, and prevention measures are not observed.

Infected flocks were detected in all but one county (Barnstable). While the number of positive flocks (22) and number of birds in these flocks (22,761) may be small, they represent an integral part of the breeding stock in the State which is disseminating pullorum infection. The owners of these flocks should make a conscientious effort to eliminate the infection from their premises. Owners of the infected flocks are encouraged to discuss their pullorum disease problems with the testing agency so that plans for possible eradication of the disease may be adopted. A definite program should be formulated and carried out at such a time so that

it will be most effective and least expensive. It is inexcusable for a poultry breeder to-day to sell pullorum disease stock year in and year out.

The main burden in the establishment and maintenance of pullorum clean flocks rests with the poultry breeder. The testing agency can identify pullorum infected stock, but it is the flock owner's responsibility to avoid direct or indirect contact between infected and clean flocks. The flock owner who exercises sound prevention measures will be successful in maintaining a pullorum clean flock.

TABLE 5. NON-REACTING AND POSITIVE FLOCKS CLASSIFIED BY COUNTIES

County	100% Tested		Partially Tested		Total	
	Flocks	Birds	Flocks	Birds	Flocks	Birds
Non-Reacting Flocks						
Barnstable	4	3,685	—	—	4	3,685
Berkshire	4	7,012	2	847	6	7,859
Bristol	26	46,883	5	4,264	31	51,147
Essex	24	27,027	6	4,217	30	31,244
Franklin	26	36,855	—	—	26	36,855
Hampden	18	15,475	1	540	19	16,015
Hampshire	17	18,632	4	1,715	21	20,347
Middlesex	40	64,541	10	5,583	50	70,124
Norfolk	20	109,169	7	2,102	27	111,271
Plymouth	22	37,790	6	3,877	28	41,667
Worcester	40	65,850	4	1,402	44	67,252
Totals	241	432,919	45	24,547	286	457,466
Positive Flocks						
Berkshire	5	4,160	—	—	5	4,160
Bristol	1	2,672	1	539	2	3,211
Franklin	2	1,659	—	—	2	1,659
Hampden	1	62	—	—	1	62
Middlesex	1	49	2	1,722	3	1,771
Norfolk	1	315	3	7,854	4	8,169
Plymouth	—	—	1	315	1	315
Worcester	4	3,414	—	—	4	3,414
Totals	15	12,331	7	10,430	22	22,761

Comparison of 1936-37 and 1937-38 Testing

Table 6 gives a comparison of the 1936-37 and 1937-38 testing results. The numbers of flocks tested in the various counties during the two seasons do not differ greatly, except in Hampden County, which had eleven less than the previous year. However, increases in the number of birds and tests were observed in eight counties. In the majority of counties the average percentage of positive tests was lower than the previous season and in five counties an increase in non-reacting flocks was observed.

For the State as a whole increases were observed in tested flocks (1), tested birds (31,708), tests (36,007), and non-reacting flocks (5). The average percentage of infection was further reduced from 0.37 to 0.17.

TABLE 6. COMPARISON OF 1936-37 AND 1937-38 TESTING

County	Flocks	Birds	Tests	Positive Tests Percent	Non-Reacting Flocks
		1936-37 Season			
Barnstable	4	11,714	11,714	0.00	4
Berkshire	13	11,483	11,483	2.22	9
Bristol	34	46,494	46,968	0.27	28
Dukes	1	79	79	0.00	1
Essex	22	22,549	22,549	0.16	21
Franklin	28	40,304	42,731	0.08	27
Hampden	31	19,605	20,430	0.50	29
Hampshire	22	18,647	19,520	0.04	21
Middlesex	47	66,565	66,669	0.01	46
Norfolk	26	105,376	112,157	0.79	22
Plymouth	27	36,643	36,643	0.30	25
Worcester	52	69,060	70,819	0.23	48
Totals	307	448,519	461,762	0.37	281
		1937-1938 Season			
Barnstable	4	3,685	3,685	0.00	4
Berkshire	11	12,019	12,722	1.73	6
Bristol	33	54,358	59,377	0.14	31
Essex	30	31,244	31,658	0.03	30
Franklin	28	38,514	40,052	0.16	26
Hampden	20	16,077	16,111	0.08	19
Hampshire	21	20,347	20,635	0.04	21
Middlesex	53	71,895	71,899	0.33	50
Norfolk	31	119,440	123,833	0.12	27
Plymouth	29	41,982	41,997	0.07	28
Worcester	48	70,666	75,800	0.05	44
Totals	308	480,227	497,769	0.17	286

Testing of Fowl Other Than Chickens

It is recognized that the domestic chicken is not the only host of pullorum disease. Several species of fowl other than the chicken have been observed to contract pullorum disease. Natural outbreaks of pullorum disease have been reported more frequently among turkeys than among any other species of fowl except chickens. Field investigations have revealed that in most cases the infection was directly or indirectly traceable to infected chicken flocks by way of the incubator or brooder house.

In Massachusetts no definite pullorum infection has been encountered in the testing service in birds other than the chicken and the turkey. However, in order to lessen the risk of introducing pullorum infection into a flock it would seem expedient to test all fowl on the premises. Owners of "pullorum passed" and "pullorum clean" flocks should by all means avoid the practice of hatching eggs from birds whose pullorum disease status is not known. This precaution also applies to other diseases such as fowl typhoid and paratyphoid infections, which may be transmitted through the egg.

Table 7 gives the testing results of fowl other than chickens. Pullorum disease reacting birds were detected in two turkey flocks. Reacting adult turkeys were subjected to necropsy and *S. pullorum* was isolated. Investigations are being continued in the two turkey flocks and the results will be published at a later date.

TABLE 7. TESTING RESULTS OF FOWL OTHER THAN CHICKENS

	Number Tested	Percent Reactors
Ducks	10	0.00
Geese	1	0.00
Guinea Fowl	7	0.00
Pheasants	61	0.00
Turkeys	4,277	2.29

Comments and Suggestions

A recapitulation of the testing results suggests that the following important eradication and prevention measures should be emphasized to flock owners at this time.

(1) In order to determine the true status of breeding flocks all birds on the premises should be tested annually. Intermittent and partial flock testing may appear to be successful in some flocks, but from the standpoint of establishing and identifying pullorum clean flocks the chances of failure are far greater than through the practice of annual testing of all birds on the premises. Under practical commercial plant conditions birds are shifted on the plant from time to time. Untested birds are apt to have direct or indirect contact with tested birds. In order to determine the true status of the flock every bird on the premises should be tested.

(2) The problem of infection appearing in flocks previously negative is an important one. When a "break" occurs in a breeding flock it is exceedingly discouraging and also very expensive to the owner. The flock owner who conscientiously observes the prevention measures listed in this bulletin should feel reasonably certain that his flock is free from the disease. A poultryman should be constantly alert in preventing the introduction of infection since there are several avenues through which the disease organism may enter.

(3) In view of the fact that our knowledge concerning the relationship of fowl other than chickens to the pullorum disease eradication problem is still somewhat meager, it appears advisable to suggest to owners of breeding flocks to test all birds on the premises, including fowl other than chickens. Since birds such as turkeys, pheasants, quail, and grouse are now being hatched in artificial incubators on premises where pullorum infection may exist, it seems quite possible that such birds will contract the disease. Such infected birds may later introduce the disease onto pullorum clean premises by means of custom hatching. This is especially possible with turkeys, since adult infected turkeys have been found to eliminate the organism by way of the egg.

(4) In identifying pullorum clean flocks, the problem of the doubtful reactor is a significant one. It has been observed that birds' sera may give weak or nonspecific reactions which do not always indicate that such birds are necessarily infected with pullorum disease. For the last ten years, when previously nonreacting flocks reveal only doubtful reacting birds, it has been the practice that they be submitted to the laboratory for necropsy and bacteriological examination. When no evidence of pullorum infection is detected on such examinations the flock is regarded as negative. The results over a period of ten years show that this supplementary examination is very helpful and reliable in establishing an accurate flock diagnosis. Flock owners are expected to submit doubtful reacting birds for examination when requested by the testing laboratory. Failure to comply with such request places the tested flock on record as positive.

(5) Success in pullorum disease eradication is dependent upon its effectiveness in establishing and maintaining pullorum clean flocks. Definite measures to attain this goal have been set forth in this bulletin. Progress in eradication may be expedited through more effective education concerning the establishment and maintenance of pullorum clean flocks. Owners of pullorum clean breeding flocks can accomplish much by emphasizing the benefits and value derived from a free flock. Various agencies (including the flock owners, county poultry associations, county extension service, etc.) might consider educating their local poultry raising public and making available official lists of pullorum free flocks where stock can be conveniently obtained. It must be remembered that the testing of poultry for pullorum disease or the identification of pullorum free flocks is one of several phases of a complete eradication program. The pullorum free flocks that have been identified should be utilized to the fullest extent to bring about progress in eradication and to serve the poultry industry in the maximum capacity.

(6) Official recognition given to tested flocks serves both the purchaser and seller of pullorum free stock. The Massachusetts Department of Agriculture recognizes two official grades for pullorum disease tested flocks, namely, "pullorum passed" and "pullorum clean." Owners of flocks which are able to qualify for either of these grades are encouraged to apply to the Massachusetts Department of Agriculture, State House, Boston, for recognition. Lists of these flocks are published from time to time and serve as a valuable guide to the purchaser interested in stock free from pullorum disease.

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MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Control Series | Bulletin No. 94 | October, 1938

Inspection of Commercial Feedstuffs

By Philip H. Smith

This is the forty-fourth report of feeding stuffs inspection and presents the results of analysis of 1,721 samples of feeding stuffs intended for livestock and poultry consumption, collected during the year ending September 1, 1938. In addition are included information and analyses relative to the vitamin A content of alfalfa products and the manganese content of commercial poultry rations.

MASSACHUSETTS STATE COLLEGE
AMHERST, MASS.

INSPECTION OF COMMERCIAL FEEDSTUFFS

By Philip H. Smith [1]

This Feed Control Bulletin, the forty-fourth published, summarizes the work of feed control service for the year beginning September 1, 1937. The results of the inspection indicate an average high quality for the goods offered. The fact should be borne in mind, however, that inferior feeds may be sold which conform to every requirement of the feeding stuffs act, and that about all the act can expect to accomplish is, through correct labeling, to furnish the purchaser with information which will enable him to purchase wisely for his needs.

During the past season, acting in cooperation with the Federal Food and Drugs Administration, eight cars of feed consisting for the most part of ground oats and oat products were seized and withdrawn from the market on account of suspected adulteration. The case against the shipper is still pending.

In order to determine the Vitamin A potency of alfalfa and alfalfa leaf meal found in dealers' stocks, some thirty samples were drawn by our inspector and subjected to tests by the nutrition laboratory. The results are published in this bulletin. Wide variations were found. Due to the fact that these products may be entirely satisfactory when originally shipped and then through age and improper storage lose much of their vitamin value, the names of the shippers are not given.

Recent research has indicated that a deficiency of manganese in chick rations may give rise to slipped tendons and other poultry disorders. For this reason many manufacturers are now adding small amounts of manganese sulphate to their feeds. We have made an attempt to discover the normal manganese content of commercial poultry rations and have also determined the manganese content of the ingredients ordinarily used in making such rations. Our results are found elsewhere in this bulletin. As so much depends upon individual conditions under which chicks are raised, it is not believed to be possible to state with any degree of accuracy the minimum manganese content necessary in a ration.

A considerable proportion of the cottonseed meal found was off in color and did not therefore conform to the grade of the National Cottonseed Products Association under which it was sold. While dark color in cottonseed meal may not indicate an injurious product if the color is due to causes other than rotting and fermentation, the fact remains that a National Association has established recognized grades in which color is one of the factors which should be recognized, not only in dealings between individual members of the Association, but by other jobbers and dealers to whom they sell. "Off color" meal is or should be sold at a discount.

Much feed is sold in Massachusetts mixed to formula furnished by the buyer. Competition is keen and occasionally such mixtures are sold at a price which allows nothing for profit or overhead if the ration is prepared as ordered. Buyers should beware of such prices. The Massachusetts Feeding Stuffs Act affords no protection to the purchaser of mixed-to-order formulas except as to basic

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[1] The following staff members assisted in the inspection: Albert F. Spelman, John W. Kuzmeski and Leo V. Crowley, chemists; Frederick A. McLaughlin, microscopist; James T. Howard, inspector; Cora B. Grover, clerk.

ingredients used. This is a transaction in which the individual buyer should protect himself.

Dog foods and feeds for fur-bearing animals raised in captivity are not included among the products over which the Feeding Stuffs Act exercises control. The law states specifically feeds intended for "live stock and poultry." It is not believed that the term "live stock" applies to either dogs or fur-bearing animals. Control Service is often asked to extend its activities to include such products. While occasional analyses are made, it is believed that guarantee requirements could not be enforced without an amendment to the act.

Analyses made at the Control Service laboratories during the year follow. These are arranged this year for the first time under the name of the manufacturer rather than by type of feed. While every attempt is made to secure as wide a representation as possible of feeds offered, it is not possible to sample and analyze every feed registered for sale in the State.

Summary of Analyses

Season of 1937-1938

	Samples	Brands	Manufacturers
Alfalfa Products			
Alfalfa Meal	8	3	3
Alfalfa Leaf Meal	8	5	5
Alfalfa Stem Meal	4	2	2
Animal and Fish Products			
Bone Meal	5	2	2
Fish Meal	12	6	6
Meat Scrap	19	12	7
Milk Powder	12	9	8
Brewers and Distillers By-Products			
Brewers Grains	8	2	2
Distillers Grains	14	7	6
Cereal Meals			
Barley Meal	1	1	1
Corn Meal	25	–	–
Ground Oats	40	–	–
Feeding Oatmeal	3	2	2
Provender (Corn and Oats)	17	–	–
Corn Products			
Gluten Meal	8	3	3
Gluten Feed	11	6	6
Hominy Feed	17	8	8
Miscellaneous Mill Residues			
Beet Pulp	5	1	1
Oat Feed	6	4	3
Rye Feed	1	1	1
Unclassified	7	5	5
Oil Cake Meals			
Soy Bean Meal	15	8	7
Cottonseed Meal	32	12	11
Linseed Meal	15	9	7
Wheat Products			
Red Dog Flour	6	6	6
Flour Middlings	10	5	5
Standard Middlings	12	8	8
Wheat Mixed Feed	36	13	13
Wheat Bran	45	22	22
Mixtures for Animals			
Calf Meals	31	13	12
Dairy Feeds	409	190	56
Fitting Rations	37	19	16
Hog Feeds	16	10	9
Molasses and Horse Feeds	99	45	31
Rabbit Feeds	14	9	7
Stock Feeds	34	20	19
Mixtures for Poultry			
Chick Growing and Starting Feeds	207	96	49
Chick Scratch Feeds	19	14	14
Duck Feeds	7	6	3
Broiler and Fattening Feeds	48	27	21
Laying Mashes	346	154	74
Turkey Feeds	44	27	14
Unclassified	8	6	6
Totals	1,721	798	–

Complete Average Analyses of Feeds Collected (Per Cent)

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Albers Bros. Milling Co.									
2	Calf Manna	9.3	27.8	25.0	4.3	4.0	48.6	2.7	5.0	7.3
	E. T. Allen Co.									
1	Empire 41% Protein Cottonseed Meal	7.0	41.7	41.0	6.0	5.5	28.1	11.1	13.0	6.1
	Allied Mills, Inc.									
2	Corn Distillers' Dried Grains	5.4	30.0	28.0	8.4	8.0	42.2	11.4	15.0	2.6
2	Empire 20% Dairy Ration	10.8	21.7	20.0	4.3	3.5	44.6	10.8	12.0	7.8
4	Empire 16½% Dairy Ration	11.8	17.7	16.5	3.7	3.5	49.6	10.0	12.0	7.2
3	Empire Egg Mash with Sardine Oil	11.8	17.7	16.5	5.0	3.5	51.6	7.0	7.0	6.9
1	Empire Growing Mash with Sardine Oil	11.7	17.7	16.0	4.9	3.0	50.5	7.7	7.0	7.5
1	June Pasture	18.4	13.0	10.0	0.7	0.5	42.0	16.4	21.0	9.5
1	41% Protein Soybean Oil Meal	11.0	41.9	41.0	5.1	5.0	31.1	5.7	7.0	5.2
2	Super Soy [1]	10.9	39.5	37.0	4.7	4.5	28.9	5.0	6.5	11.0
2	Wayne-Ameo 24% Dairy Ration	10.6	26.2	24.0	5.8	4.0	41.7	7.6	9.0	8.1
6	Wayne-Ameo 20% Dairy Ration	10.7	23.2	20.0	4.8	4.0	46.2	8.3	9.0	6.8
2	Wayne-Ameo 16% Dairy Ration	13.0	17.6	16.0	3.9	3.5	50.4	7.8	9.0	7.3
3	Wayne-Ameo 12% Fitting Ration	12.9	13.8	12.0	4.3	3.5	56.2	6.6	9.0	6.2
1	Wayne-Ameo 32% Supplement Dairy Ration	10.9	35.2	32.0	5.1	4.0	33.5	7.0	9.0	8.3
2	Wayne Broiler Ration	10.3	19.5	18.0	6.1	3.5	50.6	6.0	8.0	7.5
3	Wayne Calf Meal	11.4	25.7	24.0	4.5	4.0	44.6	6.4	7.0	7.4
1	Wayne Chick Starter	9.1	19.5	17.0	6.4	4.0	51.8	5.8	6.0	7.1
1	Wayne Chick Feed	14.2	10.7	9.0	3.4	2.0	68.7	1.4	4.0	1.6
4	Wayne Egg & Breeder Mash with Sardine Oil	11.2	19.8	18.0	5.2	3.5	49.5	6.8	7.0	7.5
3	Wayne Growing Mash with Sardine Oil	11.2	17.2	16.0	5.0	4.0	54.2	5.8	6.0	6.6
1	Wayne Hog Supplement	11.7	38.0	40.0	5.5	4.5	26.2	6.4	7.0	12.2

[1] Soybean meal with added minerals.

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Allied Mills, Inc.—Concluded									
4	Wayne Horse Feed	12.6	10.8	9.5	3.2	3.0	66.5	4.6	8.0	2.3
2	Wayne Mash Concentrate	8.8	35.6	32.0	6.0	4.0	25.8	6.5	8.0	17.3
1	Wayne 26% Mash Supplement with Sardine Oil	11.0	26.9	26.0	5.6	4.0	35.1	8.4	10.0	13.0
1	Wayne Pork Maker	14.0	15.4	14.0	4.1	3.5	55.2	5.4	7.0	5.9
4	Wayne Poultry Fattener	11.8	15.5	13.5	5.3	3.5	58.1	6.0	8.0	3.3
3	Wayne Rabbit Feed	11.1	14.4	13.0	3.4	3.0	54.2	10.4	11.0	6.5
1	Wayne Starter & Grower with Sardine Oil	12.8	15.5	16.0	4.2	3.5	55.1	5.8	6.0	6.6
2	Wayne Turkey Growing Mash with Sardine Oil	11.3	20.8	18.0	5.1	3.5	48.5	6.9	8.0	7.4
2	Wayne Turkey Starting Mash	9.8	27.5	25.0	6.8	4.0	39.3	6.1	8.0	10.5
	American Distilling Co.									
3	"Pekinil" Brand Corn Distillers Dried Grains	9.5	26.8	28.0	8.6	8.0	42.1	9.3	12.0	3.7
	American Maize Products Co.									
1	Amaizo Gluten Meal	11.5	42.1	43.0	4.4	1.0	39.8	1.3	4.0	0.9
1	Cream of Corn Gluten Feed	10.2	27.2	25.0	4.1	2.0	46.4	5.7	8.5	6.4
	A. P. Ames Co.									
2	Ames Complete Cycle Ration	13.1	16.6	16.0	4.6	4.0	51.3	5.1	6.0	9.3
1	Ames Complete Starter and Broiler Ration	11.5	17.1	17.5	4.2	4.0	51.0	5.1	7.0	7.8
2	Ames Egg Mash	12.2	20.2	20.0	5.0	4.0	46.0	5.9	7.0	10.7
2	Ames 20% Milk Maker	11.4	21.8	20.0	4.4	4.0	46.1	9.4	10.0	6.9
	Arcady Farms Milling Co.									
1	Advanced Registry Dairy Feed	11.1	25.8	25.0	3.8	3.5	42.9	9.0	10.0	7.4
1	Arcady Complete Rabbit Feed	14.1	12.4	12.0	2.6	2.5	19.6	14.3	20.0	7.0
1	Arcady Fitting Ration	15.3	13.1	12.0	3.0	3.0	51.9	8.4	10.0	8.3
3	Arcady 24% Open Formula Production Ration	12.6	23.5	24.0	4.2	4.0	42.4	8.4	9.0	8.9
3	Arcady 20% Open Formula Production Ration	12.6	20.5	20.0	4.1	4.0	45.5	8.5	9.0	8.8
1	Arcady Stock Feed	11.5	13.5	10.0	3.4	3.0	54.0	9.5	12.0	8.1
4	Arcady Sweet 16 Dairy Ration	12.6	17.2	16.0	3.4	3.5	45.7	11.6	12.5	9.5
1	Arcady-Wonder Complete All Mash Chick Starter	13.3	17.0	17.0	4.2	4.0	52.3	5.4	6.0	7.8

1	Arcady Wonder Growing Mash	12.4	17.4	17.0	4.7	4.0	52.3	6.2	7.0	7.0
2	Arcady Wonder Laying Mash	12.5	20.4	20.0	4.7	4.0	47.0	6.2	7.0	9.2
2	Arcady Wonderlas for Poultry	13.1	30.9	30.0	4.7	4.0	31.4	6.4	6.0	10.5
1	Atlantic Corn Feed Meal	16.0	9.4	8.5	3.1	3.0	65.1	4.3	5.0	2.1
2	Beets-Oats Horse & Mule Feed	14.0	10.4	10.0	3.0	3.0	58.3	8.9	10.0	5.4
1	Milkers Ready Ration	11.2	21.9	22.0	4.0	3.5	41.9	11.5	12.0	9.5
1	Old Colony Feed	10.4	21.0	20.0	4.2	3.0	47.7	8.6	11.0	8.1
3	Peerless Milk Ration	13.4	19.5	20.0	3.2	3.0	45.4	10.0	12.0	8.5
2	Sunkist Egg Mash	10.8	20.7	20.0	4.5	4.0	47.6	7.7	8.0	8.7
2	Sunkist Growing Mash	10.1	18.3	16.0	4.4	4.0	49.6	8.2	9.0	9.4
	Archer-Daniels-Midland Co.									
1	Dairyland Dried Skim Milk [2]	7.5	32.6	32.0	0.7	0.5	–	–	–	8.9
2	32 Per Cent Protein Old Process Linseed Meal	10.0	33.2	32.0	4.6	4.5	37.5	8.4	9.0	6.3
1	41 Per Cent Protein Old Process Soybean Oil Meal	9.7	44.9	41.0	4.3	4.5	29.7	5.9	7.0	5.5
	Ashcraft-Wilkinson Co.									
3	Cow-Eta Brand 41% Protein Prime Quality Cottonseed Meal	8.4	40.5	41.0	6.0	5.0	27.9	11.3	13.0	5.9
	Atkinson Milling Co.									
2	Atkinson Wheat Standard Middlings with Screenings not exceeding mill run	12.8	18.6	15.0	3.9	4.0	53.9	6.2	9.5	4.6
	W. E. Atkinson Co.									
1	Weaco Dry Mash	12.7	18.3	18.0	4.5	4.0	49.7	5.6	7.0	9.2
	Atlantic Coast Fish By-Products Co.									
3	Phoenix Fish Meal [3]	7.9	54.1	55.0	14.2	4.0	–	–	–	20.6
	B. & B. Dairy Co., Inc.									
1	Buell-Boston Dried Skim Milk [4]	4.7	35.1	33.0	0.3	0.2	–	–	–	8.3
	E. W. Bailey & Co.									
1	Pennant Fine Chick Feed	13.0	12.5	10.0	3.0	3.0	68.7	1.5	3.0	1.3
1	Pennant Brand Stock Feed	10.3	11.3	9.25	5.1	4.0	57.7	9.3	9.5	6.3
	Beacon Milling Co., Inc.									
3	Auburn Dairy Feed	12.0	21.0	20.0	4.6	4.0	46.8	8.0	10.0	7.6
2	Beacon Sweet "24"	12.0	24.8	24.0	4.6	4.0	43.5	7.6	9.0	7.5
1	Beacon "20"	11.8	21.0	20.0	4.8	4.5	47.4	8.4	9.0	6.6
2	Beacon Sweet "20"	11.8	20.8	20.0	4.7	4.0	49.1	6.9	9.0	6.7
2	Beacon Battery Growing Ration	12.7	15.7	11.0	4.1	4.0	54.8	6.1	7.5	6.6
4	Beacon Battery Laying Ration	12.2	16.0	16.0	4.5	4.0	53.5	6.1	7.75	7.7
1	Beacon Battery Pullet Growing Ration	12.0	14.9	14.0	4.3	4.0	55.5	6.0	7.5	7.3

[2] Lactose 50.3 [3] Phosphoric acid 6.8 [4] Lactose 51.6

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Beacon Milling Co., Inc.—Concluded									
2	Beacon Breeders Mash	11.6	20.6	20.0	5.2	4.0	47.0	6.7	7.5	8.9
1	Beacon Broiler Feed	12.7	18.0	17.0	4.7	4.0	51.9	5.0	6.0	7.7
4	Beacon Calf Grain Ration	12.5	14.1	15.0	4.3	4.0	53.5	8.5	10.0	6.8
1	Beacon Calf Pellets	10.1	27.1	25.0	3.6	3.5	50.6	3.4	4.0	5.2
1	Beacon's Cayuga Growing Mash	9.8	17.2	16.0	5.3	4.0	52.5	7.2	7.0	8.0
2	Beacon's Cayuga Horse Feed	12.5	12.0	10.0	2.8	2.5	61.0	7.9	9.0	3.8
2	Beacon's Cayuga Laying Mash	9.8	20.8	20.0	4.9	4.0	47.7	6.9	7.0	9.9
2	Beacon C-C Pellets	13.4	18.8	18.0	5.7	1.0	53.5	3.4	5.0	5.2
7	Beacon Complete Starting Ration	11.7	17.9	17.5	4.9	4.0	52.9	5.1	6.0	7.5
1	Beacon Comprest Rabbit Ration	11.6	18.5	18.0	3.7	3.0	53.3	6.6	7.0	6.3
1	Beacon Dairy Ration	11.7	23.6	24.0	4.5	4.5	44.1	7.7	9.0	8.4
1	Beacon Duck Breeder Pellets	11.7	19.6	17.5	4.7	4.5	52.2	4.2	6.0	7.6
1	Beacon Duck Fattening Pellets	12.3	18.3	14.0	4.5	4.5	53.9	4.8	5.5	6.2
1	Beacon Duck Growing Pellets	11.5	20.7	17.0	4.5	4.5	49.7	5.2	6.0	8.4
2	Beacon Duck Laying Mash	13.0	18.1	17.0	4.4	4.5	52.8	4.5	6.0	7.2
3	Beacon "22" Egg Mash	11.0	23.1	22.0	5.3	4.5	44.2	6.4	7.5	10.0
2	Beacon Fitting Ration (1937 registration)	11.8	15.6	15.0	5.5	4.0	54.7	6.2	8.0	6.2
1	Beacon Fitting Ration	13.9	14.3	14.0	3.9	4.0	55.2	6.3	8.0	6.4
4	Beacon Fleshing Pellets	10.7	16.0	15.0	3.9	3.5	57.9	6.2	6.5	5.3
2	Beacon "18" Growing Mash	11.6	18.2	18.0	4.7	4.0	49.2	6.9	7.5	9.4
2	Beacon "20" Laying Mash	11.6	19.7	20.0	5.2	4.0	47.6	6.4	7.5	9.5
2	Beacon Test Cow Ration	12.4	18.4	18.0	5.0	4.75	50.2	7.4	9.0	6.6
1	Cayuga 16% Pasture and Fitting Ration	13.0	15.8	16.0	2.9	3.5	50.2	9.9	9.0	8.2
	Berkshire Coal & Grain Co., Inc.									
2	Berkshire Hills Sweet Dairy Ration	12.7	20.0	20.0	4.5	4.5	48.2	7.1	8.0	7.5
1	Green Mountain Dairy Ration	10.0	23.8	23.0	4.7	5.0	46.4	8.6	10.0	6.5
2	Green Mountain Laying Mash	10.6	20.1	19.0	6.8	4.0	46.9	5.9	8.0	9.7
2	Greylock 20% Molasses Ration	13.6	19.4	20.0	4.1	4.0	49.0	7.1	12.0	6.8
	Bisbee Linseed Co., Inc.									
2	"K & M" Brand 32% Protein Old Process Linseed Meal	10.7	34.0	32.0	5.5	5.0	36.0	8.2	10.0	6.5

	Blatchford Calf Meal Co.									
1	Blatchford's Calf Meal	10.9	25.7	26.0	5.2	5.0	42.7	5.6	6.0	9.9
	Borden Co.									
1	"Flaydry" Lactoflavin Supplement [5]	7.2	26.7	18.0	1.0	0.5	–	–	–	10.9
	Borden Grain Co.									
2	Borden's Dairy Feed	11.2	22.5	22.0	4.9	4.5	18.2	6.6	9.0	6.6
2	Borden's Laying Mash	11.0	18.3	19.0	4.7	4.5	48.5	6.9	7.0	10.6
1	Borden's Starter and Growing Feed	12.1	17.3	17.0	4.2	4.0	48.2	6.1	6.0	12.1
	George B. Brown Corp.									
2	Brown's Dairy Feed	10.3	22.0	20.0	4.5	4.0	46.7	10.0	12.0	6.5
2	Brown's Egg Mash	10.9	18.4	18.0	5.0	5.0	48.6	7.5	10.0	9.6
	Burrus Mill & Elevator Co.									
2	Wheat Bran with Screenings not exceeding mill run	13.2	15.9	15.0	4.1	4.0	51.1	9.7	10.0	6.0
	A. B. Caple Co.									
4	Alfalfa Meal	11.8	14.3	13.0	1.5	1.0	37.5	29.0	33.0	5.9
1	Alfalfa Leaf Meal	10.7	21.6	20.0	1.9	2.5	39.4	14.8	18.0	11.6
3	Alfalfa Stem Meal	12.3	12.4	9.0	1.6	0.8	37.4	30.0	40.0	6.3
	Central Soya Co., Inc.									
1	Central Soybean Oil Meal	10.7	42.8	41.0	5.0	4.5	30.4	5.8	7.0	5.3
	Checkerboard Elevator Co.									
1	Wheat Bran with Screenings not exceeding mill run	12.6	16.1	15.0	3.4	4.0	51.6	9.8	11.0	6.5
	Checkerboard Feed Store									
1	Protena Laying Mash	11.8	18.8	19.0	4.6	3.5	17.1	7.7	8.5	10.0
	Coatsworth & Cooper									
1	"C and C" Wheat Bran	11.6	17.6	15.0	5.1	3.5	50.2	10.2	11.5	5.3
	Coles Feed & Grain Co.									
1	Fortune Producer Mash	13.5	21.1	20.0	4.9	4.0	46.2	5.8	5.0	8.5
	Collis Products Co.									
1	Collis Process Dried Buttermilk	9.3	29.7	30.0	6.4	5.0	–	–	–	8.0
	Commander-Larabee Milling Co.									
2	Sunfed Wheat Bran with Screenings not exceeding mill run	14.2	16.0	14.0	4.7	4.0	48.6	10.7	12.0	5.8

[5] Lactose 54.2

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Sample	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Community Feed Stores, Inc.									
1	Community Bulky Special	10.4	10 7	9.0	2 7	2 75	51.0	18.9	21.5	6 3
1	Community 20 Dairy Ration	12.2	21 7	20.0	5 0	4.5	47 0	8.1	9 0	6.0
2	Community Growing Mash	10.1	18.8	17.0	5.2	4.5	50.2	7 8	8.0	7.9
2	Community Laying Mash	9 9	20 5	20.0	5.3	4 0	47.1	6.7	7 0	10.5
1	Hilltop 20 Dairy Ration	11.3	21.6	20 0	4 6	4 0	44.0	11 6	12 0	6 9
	Consolidated Chemical Industries, Inc.									
2	Digesta-Bone [6]	1.8	7 7	5.0	0.4	–	–	–	–	85 9
	Consolidated Rendering Co.									
2	Coreneo Cod & Haddock Meal [7]	7 7	66 0	62.0	5.5	2 0	–	–	–	21.6
2	Coreneo 50% Meat and Bone Scrap [8]	6 8	49.3	50 0	10 2	6 0	–	–	–	29.9
2	Coreneo 45% Meat and Bone Scrap [9]	6 7	42 3	45.0	11 4	6 0	–	–	–	36 8
	Corn Products Refining Co.									
4	Buffalo Corn Gluten Feed	12.3	26.4	25.0	1.9	2 0	45.4	7.3	8 5	6 7
2	Buffalo Corn Gluten Feed (Sweetened)	14 6	19.5	20.0	1.7	1 0	51.7	6 7	7 0	5.8
5	Diamond Corn Gluten Meal	10.4	43.3	43.0	2.8	1 0	39.1	3.1	4.0	1.3
	Nicolas Courcy									
4	Courcy Dairy Feed	12 7	19.8	21.0	4.2	4.5	50.8	6.3	8.0	6.2
2	Courcy Eastern Laying Mash	11.5	16.6	17.0	4.5	4.0	51.6	6.0	6 0	9 8
1	Courcy Growing Feed	10.6	16.7	16.0	5.7	4 0	49.2	6.4	7.0	11.4
2	Courcy Heavy Mixed Feed [10]	11.9	16.8	16.0	4.5	4.5	52.9	7 3	7.0	6.6
	Cover & Palm Co.									
1	C. & P. Baby Chick Grains	15.6	10 3	10.0	3 6	2 0	67 7	1.4	3.0	1.4
1	C. & P. Growing Mash	10.1	22.2	17.0	5 0	4.0	44.4	5.2	7.0	13.1
2	C. & P. Grade A Laying Mash	11.0	22.3	20 0	5 1	4 0	44.3	5 2	7.0	12.1
2	C. & P. Starter & Broiler Ration	11.5	19 0	17.0	4 7	4.0	51 0	4.6	6.0	9.2
1	Wheat Bran with Screenings not exceeding mill run	12.2	17.0	14.5	4.2	3.5	50.4	9 5	11 0	6.7

	Chas. M. Cox Co.									
2	Utility Growing Ration	11.9	16.4	15.0	4.5	4.0	54.1	6.1	7.0	7.0
3	Utility Laying Ration	11.1	20.4	18.0	5.1	4.0	47.0	6.7	7.0	9.7
2	Utility Starting Ration	11.8	18.1	17.5	4.4	4.0	51.1	6.5	6.5	8.1
	Curley Bros.									
1	Crystal All Grain Starting Food	11.1	17.6	15.0	3.9	4.0	58.4	3.3	4.0	5.7
1	Crystal 24% Dairy Ration	11.2	25.0	24.0	4.9	5.0	43.5	7.2	9.0	8.2
2	Crystal 20% Dairy Ration	11.8	20.8	20.0	4.4	4.0	47.2	7.1	12.0	8.7
2	Crystal 16% Dairy Ration	11.6	18.4	16.0	4.2	4.0	50.1	8.1	12.0	7.6
2	Crystal Egg Mash	9.8	20.9	18.0	5.2	4.0	49.2	5.0	6.0	9.9
2	Crystal Growing Mash	10.7	18.0	16.0	5.1	5.0	53.6	5.0	5.0	7.6
1	Crystal Horse Feed	12.5	11.8	11.0	3.5	3.0	61.5	6.9	10.0	3.8
2	Crystal Starting Food for Broilers	10.6	18.9	16.0	5.6	4.0	53.4	4.0	4.5	7.5
1	Crystal Stock Feed	10.6	12.8	12.0	5.0	4.0	52.8	11.8	12.0	7.0
1	Premier Growing Feed	10.6	20.5	18.0	3.6	4.0	51.7	5.2	6.5	8.4
1	Premier Stock Feed	13.2	8.4	9.0	2.4	4.5	62.9	8.1	13.5	5.0
	Dairymen's League Cooperative Association, Inc.									
1	Dairylea Choice Feed Grade Dried Skim Milk [11]	8.3	33.0	33.0	0.8	0.5	–	–	–	7.7
	Dawe's Vitamelk Co.									
2	Dawe's Vitamelk Base	8.9	46.4	44.0	6.9	4.5	28.3	2.8	4.0	6.7
	Decatur Milling Co., Inc.									
2	Homco Hominy Feed	13.0	10.2	10.0	7.7	6.0	61.6	5.0	6.0	2.5
	Dehydrating Process Co.									
1	"Protine Brand" White Fish Meal [12]	4.7	69.2	60.0	3.8	3.0	-	–	–	22.7
	Delaware Mills, Inc.									
1	Delaware Chick Grains	11.1	14.3	10.0	4.3	3.0	66.7	1.8	3.0	1.8
3	Delaware Sweet 20% Dairy Feed	11.6	22.2	20.0	4.3	4.5	46.6	7.9	10.0	7.4
4	Delaware 85% Horse Feed	14.3	10.6	9.0	3.3	3.0	60.8	6.4	9.0	4.6
1	Delaware Laying Mash	10.7	18.5	20.0	5.2	5.0	50.9	6.2	7.0	8.5
2	Deleo 20% Dairy Feed	11.9	22.9	20.0	3.8	4.0	46.7	8.2	11.0	6.5
3	Indian Sweet 20% Dairy Feed	12.0	21.4	20.0	3.6	4.0	44.9	9.9	12.0	8.2
2	Indian Growing Mash	13.4	17.9	15.0	4.9	4.5	52.3	5.9	7.0	5.6
4	Indian Laying Mash	12.7	18.0	18.0	4.8	4.5	51.4	6.6	8.0	6.5
	Denver Alfalfa Milling & Products Co.									
1	Alfalfa Leaf Meal (Leafalfa Brand)	11.0	20.1	20.0	2.5	1.5	37.9	17.6	18.0	10.9
3	Alfalfa Meal	8.5	12.5	13.0	1.6	1.0	35.4	33.6	33.0	8.4

[6] Phosphoric acid 33.4 [7] Phosphoric acid 8.9 [8] Phosphoric acid 11.1 [9] Phosphoric acid 14.7
[10] Contains calcite flour. [11] Lactose 50.2 [12] Phosphoric acid 8.9

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Frank Diauto									
2	Diauto's Dairy Feed	12.8	18.8	17.0	4.6	3.92	51.3	7.1	7.74	5.4
1	Diauto's Fancy Chick Growing Mash	11.3	18.2	16.0	4.8	4.0	51.9	5.2	5.0	8.6
2	Diauto's Special Egg Mash	12.0	18.1	20.0	4.9	4.0	51.7	5.8	7.0	7.5
	F. Diehl & Son, Inc.									
2	Diehl's Dairy Feed	10.8	18.9	18.0	3.8	3.0	49.2	9.3	14.0	8.0
2	Diehl's Dry Mash	11.2	24.1	16.0	4.6	3.0	44.1	5.6	12.0	10.4
	Dietrich & Gambrill, Inc.									
1	All Mash Starter & Grower	11.3	16.7	14.0	4.3	4.0	57.0	3.6	4.0	7.1
2	All Purpose Complete Ration	12.2	16.4	15.0	4.6	4.5	55.8	4.3	6.0	6.7
2	Conditioning Ration	12.0	15.5	15.0	6.1	6.0	52.7	3.9	6.0	9.8
2	D & G Breeder Mash	11.4	21.7	19.0	4.5	5.0	47.2	6.6	9.0	8.6
2	D & G Broiler Mash	11.8	18.8	18.0	4.4	4.0	52.7	5.2	7.0	7.1
1	D & G Dairy Feed	12.8	19.9	20.0	3.7	4.0	45.4	9.9	12.0	8.3
1	D & G Turkey Growing Mash	11.9	20.9	20.0	4.4	4.0	45.8	6.1	8.0	10.9
1	Frederick Growing Mash	11.2	18.1	16.0	4.5	4.0	53.5	5.0	8.0	7.7
2	Frederick Laying Mash	11.5	19.6	18.0	4.8	4.0	49.5	6.4	8.0	8.2
2	Gambrills Chick Grains	14.3	10.5	10.0	3.4	2.5	68.8	1.5	3.0	1.5
1	Gambrills Chick Starter	12.1	16.9	18.0	1.5	4.0	55.0	3.8	4.5	7.7
1	Gambrills Growing Mash	10.7	20.5	18.0	5.7	4.0	49.9	5.3	7.0	7.9
1	Gambrills Hog Meal	13.7	19.6	18.0	3.8	4.0	49.3	6.0	8.0	7.6
1	Gambrills Horse Feed	16.0	10.6	10.0	3.5	3.5	58.7	7.9	12.0	3.3
	Dreyer Commission Co.									
3	Dryco Wheat Bran with Screenings not exceeding mill run	12.6	15.1	14.5	3.6	3.5	52.1	10.0	10.0	6.6
	J. L. Dunnell & Son									
2	Dunnell's Sweetened Dairy Ration	11.4	18.5	18.0	3.9	4.0	47.4	11.7	13.0	7.1
1	Excel 20% Dairy Ration	11.2	21.3	20.0	4.8	4.5	49.1	6.9	10.0	6.7
1	Excel Mash	11.4	23.4	19.0	4.7	5.0	46.4	4.5	6.0	9.6
2	Full Value Mixed Feed	12.3	17.6	15.0	4.4	5.0	55.5	5.6	6.0	4.6

	East Bridgewater Farmers' Exchange, Inc.									
1	Exchange Dairy Feed	14.0	18.5	20.0	4.3	4.0	52.2	6.8	9.0	4.2
1	Exchange Growing Feed	12.3	18.5	16.0	4.3	4.0	50.4	5.4	7.0	9.1
1	Exchange Mash Feed	13.0	17.9	18.0	4.9	4.0	51.0	5.4	6.0	7.8
1	Special Dairy Feed	11.7	21.9	20.0	4.7	4.0	49.6	6.9	9.0	5.2
1	Special Growing Mash	10.8	19.1	15.0	4.3	4.0	52.8	5.8	7.0	7.2
1	Special Mash Feed	11.7	19.5	18.0	4.3	5.0	52.2	5.2	6.0	7.1
	Eastern Grain Co.									
3	Eastern 24% Dairy Ration Sweetened	12.1	24.8	24.0	4.7	4.0	44.4	7.2	9.0	6.8
3	Eastern 20% Dairy Ration Sweetened	12.2	22.2	20.0	4.7	4.0	47.0	7.2	9.0	6.7
2	Eastern Poultry Flush	10.4	18.8	17.5	3.9	4.0	53.8	4.4	5.0	8.7
1	E. G. Co. Stock Feed	8.0	7.0	7.0	2.4	2.5	54.4	21.7	19.5	6.5
	Eastern States Farmers' Exchange									
2	Eastern States All-Mash Developer	12.5	15.7	14.5	4.5	3.5	55.9	4.9	6.0	6.5
6	Eastern States All-Mash Egg	12.8	17.1	15.5	4.7	4.0	53.0	5.5	6.0	6.9
5	Eastern States Calf Starter	11.5	24.4	23.0	4.7	4.0	50.9	3.4	4.0	5.1
7	Eastern States Combination	12.1	16.8	15.0	4.5	4.0	54.0	5.3	6.0	7.3
2	Eastern States 41% Protein Cottonseed Meal	7.8	40.5	41.0	6.5	5.0	28.0	10.7	13.0	6.5
4	Eastern States Developer	10.6	20.6	18.5	4.5	4.0	49.8	5.9	6.5	8.6
1	Eastern States Duck Laying	12.0	17.4	16.5	4.8	4.0	53.9	4.5	5.5	7.4
6	Eastern States Egg Mash	11.8	20.9	20.0	5.5	4.0	47.0	5.5	6.5	9.3
2	Eastern States Fattener	12.1	15.9	14.5	4.6	4.0	60.3	4.2	5.0	2.9
4	Eastern States Fitting Ration	13.8	13.6	12.0	4.0	3.5	56.5	6.6	8.0	5.5
3	Eastern States Flushing Mash	10.3	19.9	18.5	3.7	3.0	54.5	3.9	4.0	7.7
4	Eastern States Fulpail	13.0	21.7	20.0	4.6	4.5	48.0	6.6	8.5	6.1
3	Eastern States Highland 20	11.7	21.7	20.0	4.4	4.0	46.5	8.9	11.0	6.8
3	Eastern States Highland 16	11.9	17.1	16.0	4.5	3.5	50.9	9.5	11.5	6.1
1	Eastern States Highland 12	11.2	16.0	12.0	3.8	2.75	52.1	10.3	11.0	6.6
2	Eastern States Hog Meal	11.5	16.7	11.5	4.5	4.0	51.5	4.9	5.0	7.9
4	Eastern States Horse Feed	14.6	11.1	10.5	3.5	3.0	59.6	5.8	7.0	5.4
3	Eastern States Milkmore	13.1	25.5	24.0	4.3	4.5	43.2	7.1	9.0	6.8
1	Eastern States Oat Feed & Molasses	8.6	5.9	5.0	2.1	1.25	55.0	22.2	27.5	6.2
7	Eastern States Producer 20	11.1	20.1	20.0	5.0	4.0	48.3	5.1	6.0	9.8
4	Eastern States Producer 17	11.5	18.0	17.0	5.1	4.0	51.4	5.1	6.0	8.9
3	Eastern States Starting & Broiler	11.1	19.8	18.5	5.0	4.0	52.1	4.6	5.0	7.1
2	Eastern States Succulence	16.1	11.6	10.0	1.7	2.0	49.1	13.5	18.0	7.7
2	Eastern States 32% Supplement Feed	12.0	31.7	32.0	5.0	4.5	37.7	6.8	8.0	6.8
3	Eastern States Turkey-Fat	11.0	20.6	20.0	4.9	4.0	50.6	5.1	6.0	7.8
2	Eastern States Turkey-Grow	10.3	21.7	20.0	4.9	4.0	50.0	5.1	5.5	8.0
1	Eastern States Turkey-Start	10.6	27.2	25.0	4.9	4.5	43.4	5.0	5.0	8.9
	Egg-O-Milk Co.									
1	Egg-O-Milk Co's. Blend	11.2	33.4	32.0	1.9	1.5	44.5	3.6	4.0	5.4

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	M. W. Ellis									
2	The Ellis Dairy Feed	11.5	24.7	22.0	4.6	4.0	46.6	7.0	9.0	5.6
4	The Ellis Poultry Mash	11.2	21.0	20.0	5.6	4.0	47.0	5.7	8.0	9.5
2	The Ellis Special Dairy Feed	10.5	19.3	18.0	4.0	4.0	50.7	9.5	10.0	6.0
	Elmore Milling Co., Inc.									
3	Elmore Breeders Mash	11.8	21.3	20.0	6.4	3.5	46.7	5.3	7.0	8.5
1	Elmore Chick Feed	15.7	10.8	10.0	2.7	2.5	68.2	1.3	3.5	1.3
1	Elmore Chixsaver	12.5	18.9	16.5	4.8	4.0	49.6	5.8	8.0	8.4
3	Elmore Complete Laying Ration	11.9	17.3	16.0	5.5	4.0	52.6	5.6	6.0	7.1
1	Elmore Complete Starter-Broiler	12.2	18.2	17.0	5.2	4.0	50.2	5.5	6.0	8.7
1	Elmore Egg Mash	12.8	19.4	20.0	6.3	4.0	46.9	5.8	8.0	8.8
1	Elmore Fleshing Pellets	13.0	15.4	15.0	5.3	5.0	56.5	5.4	6.0	1.4
2	Elmore Growing Mash	12.0	18.0	17.0	4.5	4.0	53.3	5.2	8.0	7.0
3	Elmore Horse Feed with Molasses	12.7	10.5	9.0	3.6	2.5	64.0	6.4	11.0	2.8
2	Elmore M.A.C. Laying Mash	12.2	18.3	17.0	5.4	5.0	49.9	6.3	7.0	7.9
2	Elmore Milk Grains "Twenty-Four"	11.9	25.7	24.0	4.7	4.5	44.2	8.0	10.0	5.5
1	Elmore Milk Grains Junior	10.7	21.5	20.0	5.1	4.5	49.7	7.7	10.0	5.3
1	Elmore Stock Feed	9.1	9.9	10.0	5.4	3.0	62.4	9.7	12.0	3.5
1	Elmore 32% Supplemental Dairy Ration	12.1	28.8	32.0	4.0	4.0	40.1	8.5	9.0	6.5
2	Elmore's Sweet Digesto Dairy Feed	12.2	16.3	16.0	3.6	4.0	48.0	13.4	12.0	6.5
1	Elmore "Three Point" Calf Meal	11.7	26.7	24.0	3.8	4.0	48.1	4.4	6.0	5.3
2	Elmore Turkey Fattener	12.3	16.8	17.0	5.4	4.0	53.3	5.7	8.0	6.5
2	Elmore Turkey Growing Mash	11.6	19.6	20.0	5.4	3.5	49.6	5.7	8.0	8.1
1	Elmore Turkey Starting Mash	10.9	23.4	24.0	5.2	4.0	44.3	4.9	6.0	11.3
4	Granger 20% Dairy Ration	13.3	20.5	20.0	3.8	4.0	47.2	9.0	11.0	6.2
1	Waldorf 20% Dairy Ration	11.1	20.1	20.0	4.3	4.0	46.6	11.7	11.0	6.2
	John W. Eshelman & Sons									
3	Eshelman Challenge Dairy Feed	10.8	25.2	24.0	4.9	4.0	43.0	8.3	11.0	7.8
8	Eshelman Conestoga 20 Dairy Feed	11.5	21.9	20.0	4.6	4.0	43.9	9.3	11.0	8.8
2	Eshelman Conestoga Horse Feed	13.8	10.4	9.0	3.9	3.0	62.8	5.7	10.0	3.4
2	Eshelman Garden Spot Horse Feed	12.8	9.5	7.0	3.4	2.0	58.9	10.5	11.0	4.9
2	Eshelman Pennsy 16 Dairy Feed	12.5	18.3	16.0	4.2	3.0	46.6	9.8	11.0	8.6
3	Eshelman Pennsy Laying Mash	12.0	19.6	18.0	4.7	5.0	48.2	7.6	8.5	7.9

1	Eshelman Red Rose Calf Starter	10.8	22.6	20.0	4.4	3.0	53.1	4.0	5.0	5.1
1	Eshelman Red Rose Complete Laying Mash	11.9	17.1	15.0	4.7	4.0	55.1	5.1	6.0	6.1
1	Eshelman Red Rose 24 Dairy Feed	12.5	21.7	24.0	4.1	1.0	16.6	7.6	11.0	7.5
3	Eshelman Red Rose 20 Dairy Feed	11.5	21.7	20.0	4.2	1.0	46.6	8.0	11.0	8.0
1	Eshelman Red Rose Fattening Mash	10.2	17.3	11.0	5.6	1.5	57.3	3.7	5.0	5.9
1	Eshelman Red Rose Fitting Ration	13.7	11.2	12.0	1.3	3.5	54.9	5.8	7.0	7.1
2	Eshelman Red Rose Growing Mash	11.0	19.4	16.0	5.0	4.0	50.6	7.0	7.0	7.0
1	Eshelman Red Rose 85 Horse Feed	13.2	10.8	9.0	4.3	3.0	61.9	6.7	10.0	3.1
2	Eshelman Red Rose Laying Mash	11.4	21.1	20.0	5.2	5.0	47.1	7.0	7.0	8.2
1	Eshelman Red Rose Laying Mash with Cod Liver Oil	12.1	22.1	20.0	4.9	5.0	46.7	5.9	7.5	8.3
1	Eshelman Red Rose 32 Mixing Ration	10.4	30.5	32.0	4.6	4.5	37.8	8.7	9.0	8.0
2	Eshelman Red Rose Pig & Hog Feed	11.2	20.1	16.0	5.0	5.0	47.0	8.6	10.0	8.1
2	Eshelman Red Rose Stock Feed	11.1	11.6	9.0	4.2	3.0	57.4	9.6	11.0	6.1
2	Eshelman S-O-S	12.7	14.3	11.0	2.7	2.0	45.8	15.5	15.0	9.0
1	Eshelman Choice Wheat Mixed Feed with Screenings not exceeding mill run	13.1	15.0	11.5	3.8	4.0	53.3	9.0	8.5	5.8
	Excelsior Milling Co.									
2	Camel Fancy Wheat Feed	11.6	11.7	16.0	1.0	1.0	57.5	7.2	7.5	5.0
	Farm Service Co.									
2	"C" Complete Starter & Broiler Ration	12.5	17.7	18.0	4.8	3.5	51.1	5.9	7.0	8.0
4	C Dairy Ration	11.7	22.8	21.0	4.2	4.5	45.9	8.6	9.0	6.8
3	C Growing Mash	11.6	17.3	18.0	4.8	4.0	51.6	6.2	7.0	8.5
3	C Laying Mash	11.9	19.6	19.0	4.9	4.5	49.3	6.6	8.0	7.7
2	18% Dairy Ration	11.0	20.2	18.0	4.7	3.5	43.4	13.4	13.0	7.3
2	Diamond A Dairy Ration	10.3	26.5	24.0	4.4	5.0	42.1	9.1	8.0	7.6
1	Diamond C Dairy Feed (1937 registration)	11.0	21.1	21.0	5.0	1.5	47.9	7.1	10.0	7.9
1	Diamond C Dairy Feed	11.7	20.6	21.0	4.1	4.0	48.8	8.2	10.0	6.6
1	Eventually Gold Medal Growing Mash	11.3	17.5	16.0	4.3	4.0	51.1	6.1	7.5	9.7
4	N.E.C. Laying Mash	11.2	18.0	19.0	5.1	5.0	49.2	7.0	9.0	9.5
1	New England Dairy Ration	10.4	21.6	20.0	4.0	3.0	46.2	11.3	11.5	6.5
1	North Star Chick Starter	10.2	20.4	18.0	4.1	4.0	51.1	4.7	5.0	9.2
2	North Star 16% Dairy Feed	11.2	18.6	16.0	3.3	3.0	50.1	9.1	11.0	7.7
3	North Star Horse Feed	13.6	11.3	8.0	3.8	2.0	60.3	7.4	9.0	3.6
3	North Star Laying Mash	10.7	22.7	20.0	5.8	5.0	43.2	5.8	7.0	11.8
1	North Star Stock Feed	11.8	9.2	9.0	3.5	3.0	59.2	11.7	12.0	4.6
	Farmers Feed Co.									
6	"Bull Brand" Dried Brewers Grains	7.1	27.0	26.0	6.8	6.0	41.0	14.7	17.0	3.4
	Farmers Service Bureau									
2	Fine Ground Feeding Oatmeal	10.9	15.1	14.0	5.7	5.0	60.4	3.9	4.0	4.0
1	Farmso Red Dog	12.7	12.1	15.0	2.1	3.0	68.7	2.5	4.0	1.9
	Fernando Valley Milling & Supply Co.									
1	Fernando Ideal Greens Alfalfa Leaf Meal	8.3	20.2	20.0	2.7	2.5	40.2	18.3	18.0	10.3

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Ferneau Grain Co.									
4	F Corn Distillers Dried Grains	7.0	30.9	28.0	10.6	9.0	37.9	11.4	14.0	2.2
	Fingerlakes & Hudson Flour Mills, Inc.									
1	Rye Feed with Ground Screenings not exceeding mill run	12.0	18.2	13.5	3.2	3.0	58.2	4.8	6.0	3.6
	Flory Milling Co., Inc.									
1	Flory's "All-Mash" Chick Starter	12.9	18.7	17.0	4.8	4.5	51.3	5.1	6.0	7.2
1	Flory's 20% Cream-O-Milk Dairy Feed	13.1	19.8	20.0	4.0	4.0	47.7	8.5	12.0	6.9
3	Flory's Horse Feed	14.1	10.1	9.0	3.3	2.5	61.2	7.7	10.0	3.6
1	Flory's Special Dairy 24% Feed	11.1	25.9	24.0	3.8	3.5	43.9	8.2	10.0	7.1
1	Flory's 24% Special Dairy Feed	11.9	24.7	24.0	3.3	4.0	43.4	9.6	10.0	7.1
2	Flory's 20% Special Dairy Feed	11.8	23.0	20.0	3.7	3.5	46.1	8.6	11.0	6.8
1	Flory's 3 in 1 Starter-Growing-Laying Mash	11.0	16.1	16.0	5.0	4.0	54.7	6.8	7.0	6.4
2	Flory's 32% Protein Supplement Mash	8.7	33.2	32.0	6.3	5.0	30.5	8.2	8.0	13.1
2	Golden Egg Growing Mash	12.1	17.1	16.0	4.2	4.0	52.6	6.7	7.0	7.3
2	Golden Egg Laying Mash	10.8	20.3	20.0	4.6	4.0	48.5	7.2	7.0	8.6
3	Record Dairy Feed	12.1	23.9	20.0	3.3	4.5	44.9	8.6	9.0	7.2
1	Sunray Laying Mash	10.0	20.2	18.0	4.3	4.0	50.4	6.6	10.0	8.5
	Fred A. Fountain									
2	Fountain's Buttermilk Laying Mash	12.1	20.4	17.0	4.8	4.5	48.8	4.6	7.0	9.3
1	Fountain's Buttermilk Starting Feed	11.4	19.6	17.0	4.5	4.0	53.8	4.1	6.0	6.6
	Paul Fuller & Sons									
1	Eggmaker	10.8	18.5	18.0	5.4	4.0	51.5	6.4	7.0	7.4
	Funk Bros. Seed Co.									
4	Funk's Soybean Oil Meal	11.2	42.8	41.0	5.3	4.5	30.3	4.7	7.0	5.7
	J. B. Garland & Son, Inc.									
2	Garland Complete Starting & Broiler Mash	11.4	19.9	17.0	5.4	3.5	50.3	4.5	5.5	8.5
6	Garland 24% Dairy Ration	12.1	25.3	24.0	4.7	4.0	42.9	8.1	10.0	6.9
4	Garland 20% Dairy Ration	12.2	22.6	20.0	5.0	4.0	45.9	7.6	10.0	6.7

3	Garland Growing Mash	12.1	17.3	14.0	5.8	3.0	52.1	5.6	7.0	7.1
5	Garland Horse Feed	14.1	11.5	10.0	4.0	3.0	60.8	6.0	9.0	3.6
6	Garland Laying Mash	11.5	20.5	18.0	5.5	3.0	48.1	5.5	7.0	8.9
3	Garland Stock Feed	10.2	9.5	8.5	5.9	4.0	58.2	11.0	12.0	5.2
1	Garland Turkey Starting & Broiler Mash	9.8	23.9	22.0	5.5	4.0	44.8	6.0	7.0	10.0
1	Royal Complete Laying Ration	13.4	15.9	15.0	5.5	4.0	53.7	4.9	6.0	6.6
3	Royal 24% Dairy Ration	11.7	25.1	24.0	4.8	4.0	42.7	8.8	11.0	6.9
4	Royal 20% Dairy Ration	12.1	21.6	20.0	5.2	4.0	46.6	7.8	11.0	6.7
5	Royal Laying Mash	11.1	19.5	18.0	5.1	3.0	48.4	7.0	8.0	8.9
1	Royal Worcester Complete Dairy Ration	13.0	20.1	20.0	4.0	3.0	47.4	8.3	10.0	7.2
	General Foods Corp.									
1	Burt's Cereal Feed	11.1	17.8	17.0	3.5	3.0	51.2	12.8	20.0	3.6
2	Burt's Hominy Feed	11.8	11.3	10.0	7.7	6.0	61.2	5.2	6.0	2.8
	General Mills, Inc.									
1	Arlington Wheat Second Clear	12.5	16.8	11.0	2.4	3.0	66.7	0.3	1.5	1.3
3	Washburn's Gold Medal Hard Wheat Bran with Screenings not exceeding mill run	13.1	15.5	14.0	4.2	4.0	51.3	9.5	12.0	6.4
1	Washburn's Gold Medal Hard Wheat Standard Middlings with Screenings not exceeding mill run	12.3	17.6	15.0	4.3	4.0	55.1	6.5	9.5	4.2
3	Washburn's Gold Medal Fancy Wheat Mixed Feed	12.0	16.7	15.0	3.9	3.5	58.6	4.9	7.5	3.9
1	Washburn's Gold Medal Hard Wheat Adrian Red Dog	12.3	18.3	16.0	3.4	3.5	61.6	2.1	4.0	2.3
	Gerard Milk Products Co.									
1	Gerard Milkmalt Blend	11.2	32.2	32.0	1.7	1.5	45.1	3.6	4.0	6.2
	W. K. Gilmore & Sons, Inc.									
2	Conference Mash	11.6	19.4	17.0	5.0	4.0	47.5	6.1	6.5	10.4
1	Neponset Poultry Mash	12.2	22.2	20.0	4.7	3.0	42.7	5.5	10.0	12.7
	Gold Medal Farms, Inc.									
1	Pure Dried Skim Milk [13]	4.9	34.0	32.0	1.1	1.0	–	–	–	8.2
	John R. Golter									
2	Golter Special Complete Ration for Chicks, Growing & Laying Birds	13.8	15.0	15.0	3.8	4.5	56.6	4.1	6.0	6.7
	Goode Grain Co.									
1	Goode Laying Mash Mass. Formula	12.1	16.4	17.0	4.7	4.0	49.0	10.4	7.0	7.4
1	Goode Starting & Growing Mash	12.2	17.5	16.0	5.0	4.0	47.3	9.7	7.0	8.3

[13] Lactose 51.8

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	D. H. Grandin Milling Co.									
2	Grandin's Baby Chick Grains	11.4	10.6	10.0	2.1	2.5	69.9	1.5	5.0	1.2
1	Grandin's Breeder Mash	10.6	21.1	20.0	4.1	4.5	46.3	7.1	8.0	10.8
2	Grandin's Chick and Broiler Ration	10.7	19.3	16.0	5.1	4.0	49.9	6.0	6.0	9.0
1	Grandin's Chick Starting Mash	11.9	15.9	16.0	4.5	4.0	53.9	6.0	6.0	7.8
1	Grandin's 24% Dairy Feed	12.4	23.0	24.0	4.0	4.0	46.6	6.7	10.0	7.3
3	Grandin's 20% Dairy Feed	12.4	20.8	20.0	4.2	4.0	48.4	6.7	10.0	7.5
2	Grandin's 14% Fitting Ration	13.6	14.1	14.0	3.6	3.5	55.5	6.5	9.0	6.7
2	Grandin's Fleshing Pellets	11.8	17.4	15.0	4.5	4.5	53.1	5.1	6.5	8.1
2	Grandin's Green Feed	16.9	10.1	10.0	1.0	1.0	47.0	19.1	25.0	5.9
3	Grandin's Growing Mash	10.6	16.8	15.0	4.6	4.0	51.4	6.6	8.0	10.0
2	Grandin's Horse Feed	13.4	11.4	9.5	4.0	3.5	61.6	6.2	11.0	3.4
5	Grandin's Laying Mash	10.7	18.8	20.0	4.4	4.0	49.4	7.2	8.0	9.5
2	Grandin's Milk Maker	10.6	23.0	20.0	4.9	4.5	45.5	8.2	10.0	7.8
5	Grandin's Start-to-Finish Mash	11.4	17.7	16.0	4.4	4.0	53.0	5.9	7.0	7.6
2	Grandin's Stock Feed	10.1	10.1	9.0	4.3	4.0	58.1	11.1	12.0	6.3
2	Grandin's Turkey Grower	10.5	21.1	20.0	4.4	4.0	45.9	7.1	7.0	11.0
3	Grandin's Twin Six Dairy Feed	11.0	23.2	22.0	4.4	4.5	45.0	7.9	10.0	8.5
1	Grandin's Twin Six Dairy Feed (Sweetened)	11.9	23.1	22.0	3.9	4.5	46.1	7.3	10.0	7.4
3	M-S (Money Saver) 20% Dairy Feed	12.0	20.0	20.0	3.8	3.5	47.1	8.3	12.0	8.8
1	M-S (Money Saver) Horse Feed	14.8	9.7	9.0	3.2	3.0	61.0	6.1	11.0	5.2
1	M-S (Money Saver) Laying Mash	10.1	16.3	18.0	3.7	4.0	52.9	7.7	8.0	9.3
	Green Acre Farms									
1	Green Acres Brand Super-Quality Alfalfa Meal	7.1	19.3	17.0	2.5	2.0	38.0	24.2	27.0	8.9
	Hales & Hunter Co.									
1	Gold Flake 16% Dairy Feed	12.8	19.8	16.0	3.6	3.0	45.5	9.5	15.0	8.8
2	Kingfalfa Horse Feed	14.5	10.8	9.0	3.5	2.5	60.0	7.1	10.0	4.1
2	Red Comb All-Mash	11.6	17.8	15.0	4.7	4.0	52.3	6.7	8.0	6.9
3	Red Comb Batry Fed Layer	11.5	17.3	15.0	4.8	4.0	53.5	5.3	6.0	7.6
1	Red Comb Broiler Mash	10.5	19.2	18.0	4.3	4.0	53.1	4.8	7.0	8.1
2	Red Comb Crate Fattener	11.3	16.7	13.0	3.5	4.0	56.8	6.0	6.0	5.7
3	Red Comb Egg Mash	11.3	19.7	18.0	5.2	4.0	49.5	5.4	7.0	8.9
2	Red Comb Growing Mash	12.4	17.3	16.0	4.5	4.0	53.1	6.1	7.0	6.6

1	Red Comb Sup-Pel	9.2	21.3	19.0	5.7	5.0	47.5	7.5	11.0	8.8
2	Special Red Horn 20% Dairy Feed	12.5	22.5	20.0	3.4	3.5	45.1	8.9	12.0	7.6
	Wm. Hamilton & Son, Inc.									
1	Standard Wheat Bran with Screenings not exceeding mill run	12.0	16.3	11.0	4.2	4.0	53.2	8.5	12.0	5.8
	D. Harbeck									
2	Crusader All Purpose Mash	12.4	18.8	18.0	4.7	3.5	50.3	6.6	7.0	7.2
2	Welcome Dairy Feed	10.0	24.9	20.0	3.6	4.0	48.6	7.3	10.0	5.6
2	Welcome Growing Mash	12.7	16.7	16.0	5.5	4.0	50.8	5.9	7.0	8.4
2	Welcome Laying Mash	12.8	17.4	17.0	5.5	4.0	49.0	5.9	7.0	9.4
2	Welcome Starter & Broiler Ration	12.1	18.6	18.0	6.1	4.0	53.1	4.0	7.0	6.1
	Hecker H-O Division of Hecker Products Corp.									
2	Oat Mill Feed	9.2	6.5	6.0	2.2	1.5	49.8	25.8	28.0	6.5
	Hecker-Jones-Jewell Milling Division of Standard Milling Co.									
2	Choice Wheat Bran with Screenings not exceeding mill run	12.6	17.0	13.5	4.5	3.5	51.1	9.1	14.0	5.7
	Hercules Powder Co.									
1	Hercules Dried Whey [14]	7.0	11.7	11.5	0.8	0.2	–	–	–	11.0
	D. B. Hodgkins' Sons									
2	Hodgkins' Dairy Ration	11.8	21.2	20.0	4.7	4.5	46.9	8.0	10.0	7.4
1	Hodgkins' Growing Mash	10.5	18.6	17.0	5.1	3.5	51.5	5.4	10.0	8.9
2	Hodgkins' Poultry Mash	10.9	20.0	18.0	5.5	5.0	49.2	6.0	8.0	8.4
	Horvitz Grain Co.									
2	Mak-M-Lay Laying Mash	11.7	20.1	20.0	4.9	5.0	47.0	7.3	9.0	9.0
2	Wantmore Dairy Ration	11.1	23.4	20.0	5.0	4.0	45.3	8.4	10.0	6.8
2	Wantmore Dairy with Beet Pulp	11.3	20.7	20.0	4.5	4.0	47.8	9.3	10.0	6.4
2	Wantmore 24% Sweetened Dairy Feed	10.6	25.2	24.0	1.8	4.0	40.4	11.8	13.0	7.2
2	Wantmore 20% Sweetened Dairy Feed	11.5	22.8	20.0	4.3	4.0	41.6	12.3	13.0	7.5
	Houston Milling Co.									
1	Hominy Feed	12.0	10.3	10.0	6.2	6.0	66.1	3.1	7.0	2.3
	R. B. Howlett									
1	Ideal Poultry Mash	14.2	18.0	15.0	5.2	4.0	49.5	5.9	10.0	7.2
	Humphreys-Godwin Co.									
9	Dixie Brand Prime 41% Protein Cottonseed Meal	8.2	41.6	41.0	6.9	5.0	27.2	10.1	12.0	6.0

[14] Lactose 69.5

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Illinois Cereal Mills, Inc.									
3	Hominy Feed	10.3	10.9	10 0	7.1	6.0	65.3	3 9	5 0	2.5
	Independent Tallow Co., Inc.									
3	Eggaday Brand Poultry Feed (Meat & Bone Scrap)[18]	6.5	47.4	50.0	10.1	6 0	–	–	–	32.4
	International Milling Co.									
1	Blackhawk Wheat Red Dog	11.3	19 1	16.0	3.3	3.5	60.5	3 2	4 0	2.6
3	Blackhawk Wheat Standard Middlings with Screenings not exceeding mill run	12.1	17.1	16 0	4.5	4.5	53 2	7.5	8 5	5.0
	Ismert-Hincke Milling Co.									
2	Oracle Pure Wheat Bran	12 3	16 3	16 0	4 3	3 5	51 1	9 1	11 0	6.6
	Jaquith & Co.									
2	Dairy Ration	12.9	20 1	20 0	4 1	4 0	47.8	7 4	8 0	7.4
2	Growing Mash	11.9	16.9	16.0	4 7	5.0	52.8	6.6	6.0	7.1
2	Horse Feed	13.6	12.4	12.0	3 6	3.5	60 4	5.6	7.0	4.4
2	Laying Mash	11 1	19.9	17.0	4 9	4 0	47.3	8.2	8 0	8.6
1	Starting Feed	11 8	17 6	14.0	4 9	5 0	49.5	6.4	4 0	9.8
	Kansas Flour Mills Corp.									
3	Big Flake Pure Wheat Bran	13.0	16 0	15.0	4 1	3.5	51 3	9 5	11.0	6 1
1	Wheat Gray Shorts with Screenings not exceeding mill run	12 7	18 3	16 0	4.4	3.5	54 6	5.6	6.0	4.4
	Kasco Mills, Inc.									
1	Apex Complete Grower	11.9	14 1	14 0	4.6	4.0	59.0	4.7	8.5	5.7
2	Apex 20% Dairy Ration	13 0	21.4	20.0	3.7	3.5	45.9	8.1	12 0	7.9
2	Apex Growing Mash	11.6	18.6	17.0	4.8	4 0	51.6	5.8	8.5	7.6
3	Apex Laying Mash	11.1	22.1	20 0	4 9	4 0	46.1	6 0	8.5	9.8
2	Apex Starter	12.5	16.4	15.0	4 8	4.0	54.5	4.7	6.0	7.1
3	Beatsall Milk Grains	12.5	24.8	22.0	3.7	4.0	45.0	7 2	10.0	6 8
1	Kasco All Mash Chick Starter	13.1	18.4	17.0	5 0	4 0	52.0	4 4	5.5	7.1
2	Kasco All Mash Grower	12 8	16.4	14 0	4 8	4 0	54 8	5 1	5.5	6.1

4	Kasco All Mash Laying Food	12.8	15.7	15.0	4.4	4.0	56.5	4.6	6.0	6.0
2	Kasco Broiler Ration	12.2	19.4	18.0	4.9	4.0	51.7	5.1	5.5	6.7
2	Kasco Calf Meal	11.0	22.5	21.0	4.1	3.5	51.3	3.9	4.5	7.2
3	Kasco Complete Rabbit Ration	11.9	14.3	12.0	2.9	2.0	50.4	12.8	20.0	7.7
1	Kasco 18% Dairy Ration	12.5	21.7	18.0	3.9	3.5	49.2	6.4	10.0	6.3
2	Kasco Fitting Ration	13.4	17.3	14.0	3.8	4.0	52.0	6.3	8.0	7.2
2	Kasco Horse Feed	13.6	10.5	9.0	3.4	3.0	61.0	6.9	10.0	4.6
1	Kasco Laying Mash	10.4	20.7	20.0	4.7	4.0	48.9	6.2	6.5	9.1
1	Kasco 20% Milk Maker	13.3	22.1	20.0	3.7	4.0	46.6	6.8	10.0	7.5
2	Kasco Open Formula 20% Dairy Ration	12.7	21.8	20.0	4.2	3.5	46.6	7.7	10.0	7.0
2	Kasco Pig Hog Feed	11.3	19.5	17.0	5.0	4.5	52.0	6.2	7.5	6.0
3	Kasco Poultry Flushing Mash	10.1	18.5	17.0	4.2	4.0	52.5	4.5	5.5	10.2
1	Kasco Rabbit Pellets	10.5	16.1	13.0	4.1	3.0	56.0	7.6	11.0	5.7
2	Kasco Sweet 16% Dairy Feed	12.5	18.4	16.0	3.3	3.5	49.0	9.3	12.0	7.5
1	Kasco Turkey Grower	12.3	20.1	20.0	4.8	4.0	47.6	8.0	8.0	7.2
1	Kasco Turkey Starter	9.8	27.7	21.0	4.3	4.0	37.7	7.3	8.0	13.2
	Kellogg Co.									
3	White Hominy Feed	10.1	11.5	10.0	7.2	6.0	64.5	4.1	5.0	2.6
	Spencer Kellogg & Sons, Inc.									
1	Kellogg's 32% Protein Old Process Linseed Meal	9.2	33.0	32.0	5.5	4.5	38.4	7.7	9.0	6.2
3	Kellogg's 41% Protein Old Process Soy Bean Oil Meal	9.4	43.5	41.0	5.0	4.5	31.4	5.0	7.0	5.7
	Keystone Dairy Co.									
1	Skim Milk Powder [16]	3.6	34.8	32.0	1.3	0.75	–	–	–	8.4
	King Midas Flour Mills									
1	Cloverleaf Pure Wheat Bran	13.8	17.5	15.0	3.6	4.0	50.3	9.0	12.0	5.8
	Larrowe Milling Co.									
5	Dried Beet Pulp	11.3	9.3	7.0	0.6	0.3	55.7	20.2	22.5	2.9
1	41% Protein Cottonseed Meal—Prime Quality	8.8	41.0	41.0	6.1	6.0	28.7	9.3	10.0	6.1
4	Larro The Ready Ration for Dairy Cows	11.4	21.1	20.0	3.9	3.75	47.5	10.0	12.0	6.1
1	Larro Broiler Ration	10.8	20.1	18.0	4.3	4.0	51.0	5.3	6.5	8.5
2	Larro Calf Builder	11.0	26.0	25.0	4.5	4.0	48.9	3.9	4.5	5.7
1	Larro Chick Builder	11.8	20.2	19.0	4.5	4.0	49.0	6.1	7.0	8.4
4	Larro Egg Mash	11.9	20.9	20.0	4.6	4.0	48.1	6.1	7.5	8.4
1	Larro Turkey Builder	10.0	27.0	24.0	4.9	4.5	43.3	5.5	6.5	9.3
1	Larro Turkey Finisher	10.5	20.6	19.0	4.1	3.5	50.1	5.7	7.0	9.0
	Lincoln Farm Products Corp.									
1	Farm Brand Meat and Bone Scrap [17]	6.2	47.4	50.0	10.1	8.0	–	–	–	33.8

[15] Phosphoric acid 12.5 [16] Lactose 51.9 [17] Phosphoric acid 12.8

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	L. B. Lovitt & Co.									
1	"Lovit Brand" 36% Protein Cottonseed Meal	9.1	35.8	36.0	6.7	4.5	30.0	12.0	15.0	6.4
4	"Lovit Brand" 41% Protein Cottonseed Meal	7.7	41.3	41.0	6.5	5.0	28.0	11.0	13.0	5.5
	Maine Fish Meal Co.									
3	Maine Vitamin D Fish Meal [18]	14.7	54.7	55.0	9.5	12.0	–	–	–	19.1
	Mansfield Coal & Grain Co.									
1	Manco Laying Mash	11.7	22.5	20.0	5.2	5.0	43.4	1.7	6.5	12.5
	Mansfield Milling Co.									
3	Mansfield Chick-Growing Feed	12.1	18.3	17.0	4.8	4.0	51.6	6.1	8.0	7.1
2	Mansfield Chick Starter	12.2	18.2	17.0	5.1	3.5	50.5	6.0	6.5	8.0
1	Mansfield Cow-Ration	11.5	21.6	20.0	4.3	4.0	50.2	6.4	9.0	6.0
4	Mansfield Dry Poultry Mash	11.2	20.9	20.0	5.5	5.0	46.2	6.2	7.0	10.0
4	Mansfield Sweetened "20"	13.6	21.4	20.0	4.5	5.0	45.6	7.5	8.5	7.4
	Maritime Milling Co., Inc.									
1	B-B Broiler Ration	12.6	19.7	20.0	4.6	4.0	48.4	6.4	7.0	8.3
1	B-B Calf Meal	11.1	25.4	22.0	4.0	4.0	49.2	4.0	5.0	6.3
1	B-B Chick Feed	15.0	11.2	10.0	3.0	2.0	67.8	1.6	4.0	1.4
4	B-B Complete Chick Starter Ration	12.4	20.5	20.0	4.7	4.0	47.9	5.9	6.0	8.6
3	B-B Sweetened Bull Brand "20" Dairy Ration	14.1	20.8	20.0	3.3	4.0	46.3	7.1	9.0	8.4
3	B-B Daisy Horse Feed	13.2	9.8	6.5	3.2	1.5	58.7	11.0	12.0	4.1
1	B-B Bull Brand Dry and Fresh Cow Fitting Ration	15.0	11.3	13.0	3.1	4.0	53.5	8.0	9.0	9.1
3	B-B Fattening Mash	12.3	16.1	13.0	4.3	4.0	56.3	5.3	6.0	5.7
1	B-B Flushing Mash	10.7	16.4	14.0	6.0	2.5	52.9	4.5	4.0	9.5
1	B-B Flushing and Conditioning Mash	13.2	15.1	14.0	3.8	2.5	58.4	3.3	4.0	6.2
1	B-B Growing Mash	12.6	18.6	15.0	4.2	4.0	48.2	8.2	7.0	8.2
1	B-B Bull Brand Horse Feed	14.3	10.8	8.0	4.0	2.0	60.6	7.1	10.0	3.2
3	B-B Layer & Breeder Mash	10.9	20.1	20.0	5.1	4.5	46.7	6.8	7.0	10.4
1	B-B Pig & Hog Feed	14.5	15.4	14.0	3.1	3.5	53.0	6.7	9.0	7.3
4	B-B Daisy Egg Mash	11.7	19.4	20.0	4.6	3.5	45.4	8.0	9.0	10.9
3	Hi-Test Dairy Feed 24% Pro. Sweetened	12.6	23.5	24.0	4.3	4.0	41.9	9.5	12.0	8.2

3	Hi-Test Dairy Feed 20% Pro. Sweetened	13.2	19.5	20.0	3.8	4.0	44.6	10.3	12.0	8.6
4	Marmico 16% Protein Dairy Feed	13.1	17.1	16.0	4.2	4.0	45.4	11.3	12.0	8.9
1	Meadow Sweet Supplemental Dairy Feed	13.3	14.5	12.0	3.1	2.5	46.3	14.1	15.0	8.7
	George J. Meyer Malt & Grain Corp.									
2	Malt Sprouts	8.0	28.3	25.0	1.5	1.4	45.1	10.7	14.0	6.4
	Middlesex County Farm Bureau Association									
1	Farm Bureau Brand All Mash Developer	11.3	18.1	11.5	5.0	3.5	53.9	5.4	7.0	6.3
2	Farm Bureau Brand All Mash Laying	11.9	16.8	15.0	5.3	4.0	52.4	6.0	6.5	7.6
2	Farm Bureau Brand Dairy Ration 24%	12.0	24.6	21.0	5.0	4.5	44.7	7.9	9.0	5.8
2	Farm Bureau Brand Dairy Ration 20%	12.2	21.2	20.0	4.8	4.5	49.0	7.7	8.5	5.1
2	Farm Bureau Brand Dairy Ration 16%	12.1	19.6	16.0	4.1	4.0	51.7	6.9	8.0	5.6
2	Farm Bureau Brand Dairy Ration 12%	12.9	11.6	12.0	4.1	3.5	56.1	7.0	8.0	5.0
1	Farm Bureau Brand Developer	11.2	19.0	18.5	5.0	4.0	52.5	5.2	6.5	7.1
1	Farm Bureau Brand Fattener Mash	10.8	16.1	14.5	5.1	4.0	61.1	3.8	5.0	3.1
2	Farm Bureau Flushing Mash	10.4	22.6	20.5	4.4	4.0	51.6	3.2	3.0	7.8
2	Farm Bureau Brand Horse Feed	13.5	11.9	11.0	3.7	3.0	60.2	6.4	7.5	4.3
1	Farm Bureau Brand Laying Mash	10.4	21.5	20.0	5.1	4.0	47.5	6.3	6.5	8.9
4	Farm Bureau Brand Laying Mash 20%	11.0	20.9	20.0	5.5	4.0	47.6	5.8	6.0	9.2
2	Farm Bureau Brand Laying Mash 17%	11.6	18.3	17.0	5.5	4.0	50.2	5.5	6.5	8.9
3	Farm Bureau Brand Starter & Broiler	12.1	18.2	18.5	4.8	4.0	51.1	5.5	5.0	8.3
1	Farm Bureau Brand Succulence	11.7	12.9	10.0	2.1	1.5	48.0	17.0	20.0	8.0
2	Farm Bureau Brand Turkey Growing Ration	10.9	21.2	20.0	5.6	4.0	47.3	6.0	5.5	9.0
	Miner-Hillard Milling Co.									
3	Choice Steam Cooked Hominy Feed	11.0	11.9	10.0	7.9	5.0	61.9	4.2	5.0	3.1
	Geo. Q. Moon & Co., Inc.									
1	Goat Ration	12.7	19.3	18.0	4.3	4.0	49.7	7.0	12.0	7.0
1	Moon's Growing Mash	10.3	16.6	17.0	4.7	4.0	49.8	5.0	7.0	13.6
3	Moon's 90 Molasses Horse Feed	12.5	12.3	9.0	3.0	3.0	64.7	5.1	10.0	2.4
1	Moon's Special A Laying Mash	10.6	19.0	18.0	4.5	5.0	49.1	7.3	9.0	9.5
2	Moon's Stock Feed	10.2	10.9	9.0	5.6	3.0	56.7	11.3	12.0	5.3
5	Moon's Wheat Bran with Screenings not exceeding mill run	12.8	16.0	15.0	3.6	3.0	57.1	6.3	10.0	3.9
6	Moon's Fresh Ground Wheat Middlings	12.0	11.8	14.0	4.1	2.85	63.5	3.1	7.5	2.5
4	Moon's Fresh Ground Mixed Feed with Screenings not exceeding mill run	13.0	15.5	15.0	3.2	1.0	59.0	5.7	10.0	3.6
1	Open Formula Dairy Ration	11.0	23.0	20.0	5.4	4.5	44.6	8.3	8.0	7.7
1	Special A Dairy 20% Ration	10.4	23.3	20.0	4.0	4.0	47.0	8.1	10.0	7.2
2	U. S. 24% Dairy Ration	11.8	24.0	24.0	4.5	3.0	45.4	6.8	12.0	7.5
6	U. S. 20% Dairy Ration	12.0	19.6	20.0	4.4	4.0	46.0	11.0	12.0	7.0

[18] Phosphoric acid 6.3

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Jas. F. Morse & Co.									
1	Morse's Fish Meal for Poultry [19]	8.3	64.1	55.0	3.5	3.0	–	–	–	24.1
1	Morse's 55% Meat Scraps for Poultry [20]	6.9	55.3	55.0	12.2	8.0	–	–	–	22.9
2	Morse's 45% Meat Scraps for Poultry [21]	6.9	44.0	45.0	9.0	8.0	–	–	–	36.3
	Morten Milling Co.									
2	Wheat Bran with Screenings not exceeding mill run	13.0	17.1	14.5	3.8	4.0	49.3	10.4	10.0	6.4
	New England Retail Grain Dealers Co-operative Association, Inc.									
1	New England Quality Chick Starter	12.5	20.8	17.5	4.5	4.0	46.7	5.9	7.0	9.6
3	New England Quality 20% Dairy Feed	12.8	21.9	20.0	4.4	4.0	46.6	7.7	9.0	6.6
2	New England Quality Growing Mash	10.9	19.9	17.5	5.4	4.0	48.2	7.3	7.0	8.3
3	New England Quality Horse Feed	13.4	12.1	10.0	3.5	3.0	60.2	6.7	9.0	4.1
3	New England Quality Laying Mash	11.2	20.5	20.0	4.8	4.0	47.9	5.9	7.0	9.7
3	New England Yankee 20% Dairy Ration	13.2	20.9	20.0	4.1	3.5	44.9	9.8	9.0	7.1
4	New England Yankee Egg Mash	10.9	21.1	18.0	4.9	4.0	48.7	6.4	8.0	8.0
2	New England Yankee Growing Mash	10.1	21.4	17.0	5.3	4.0	47.7	6.2	8.0	9.3
4	Stock Feed	10.0	10.1	10.0	3.8	3.0	54.9	15.3	12.0	5.9
	North East Feed Mill Co.									
1	North East Quality Feeding Oat Meal	11.8	16.3	15.0	4.3	4.0	62.5	3.0	3.75	2.1
	Northwestern Consolidated Milling Division of Standard Milling Co.									
2	Pure Wheat Bran	13.9	17.8	14.0	4.7	4.0	49.1	8.7	12.0	5.8
1	Wheat Flour Middlings with Screenings not exceeding mill run	11.2	19.5	15.0	4.4	4.0	55.3	5.6	6.0	4.0
1	Wheat Standard Middlings with Screenings not exceeding mill run	11.8	17.0	15.0	4.6	4.0	52.1	9.2	9.5	5.3
2	Planet Feed	12.8	19.2	15.0	4.4	4.0	51.3	5.3	8.0	4.0
1	XXX Comet Red Dog	13.0	19.5	16.0	3.9	4.0	58.8	2.2	4.0	2.6

	Ogden Grain Co.								
3	"Biddy" Laying Mash (1937 registration)	11.5	20.2	18.0	4.9	4.0	49.3	6.5	7.0	7.6
1	"Biddy" Laying Mash	12.2	19.4	20.0	4.4	4.0	48.7	6.7	7.0	8.6
2	Cloverbloom 24% Dairy Feed	12.0	23.7	24.0	3.1	3.5	44.3	9.8	11.0	7.1
1	Cloverbloom 20% Dairy Feed	12.0	20.8	20.0	3.9	4.0	49.1	8.3	10.0	5.9
1	24% Ograinco Milk Ration	13.4	24.8	24.0	4.3	4.5	43.0	7.5	10.0	7.0
1	Ograinco Milk Ration 20%	11.4	22.6	20.0	4.7	4.5	45.4	8.5	10.0	7.4
1	Pilgrim All Purpose Complete Ration	11.4	17.9	16.0	4.7	4.0	51.8	6.1	6.0	8.1
2	Pilgrim "Cackle" 20% Layer-Breeder	13.0	18.9	20.0	4.7	4.0	50.4	5.9	8.0	7.1
3	Pilgrim Chick and Broiler Ration	12.2	18.9	18.0	4.5	4.0	52.2	5.8	6.0	6.4
1	Pilgrim Complete Ration	11.6	16.2	15.0	5.3	4.0	52.9	6.5	6.5	7.5
1	Pilgrim 16% Dairy Feed	9.2	17.4	16.0	4.1	3.5	53.5	8.9	10.0	6.9
2	Pilgrim Growing Mash	11.7	16.9	16.0	4.7	4.0	52.1	6.2	8.0	8.4
2	Pilgrim Horse Feed	13.3	11.6	10.0	3.9	4.0	61.5	6.1	9.0	3.6
1	Pilgrim Laying Mash	12.0	21.0	20.0	5.2	5.0	46.7	6.0	7.0	9.1
3	Pilgrim Special Laying Mash	13.3	18.5	18.0	4.4	4.0	49.8	6.2	7.0	7.8
5	Thrift 20% Dairy Feed	13.4	20.5	20.0	3.4	4.5	47.8	7.4	8.0	7.5
	Old Fort Mills, Inc.								
1	Old Fort Soy Bean Oil Meal	12.9	12.8	41.0	4.6	5.0	29.0	5.6	7.0	5.1
	Park & Pollard Co.								
1	Bidwell 20% Dairy Ration	12.9	20.4	20.0	4.2	3.5	43.4	9.9	12.0	9.2
1	Bidwell Growing Feed	10.5	19.0	15.0	3.6	3.0	52.5	7.9	7.0	6.5
3	Bidwell Laying Mash	11.9	17.7	18.0	4.0	3.0	52.1	6.9	8.0	7.4
1	Bulky-Sweet Dairy Feed	15.3	11.3	11.0	1.9	2.5	55.5	9.0	12.0	7.0
6	Doublex 24% Dairy Ration	11.8	24.7	24.0	3.9	3.5	43.7	7.9	11.0	8.0
6	Doublex 20% Dairy Ration	12.9	20.2	20.0	3.7	3.5	45.5	9.3	11.0	8.4
2	Doublex 16% Dairy Ration	11.3	17.9	16.0	4.3	3.5	47.3	11.0	11.0	8.2
1	Lay or Bust Dry-Mash	11.3	19.7	18.0	4.6	3.0	49.9	6.6	7.0	7.9
6	Manamar Doublex 20% Dairy Ration	12.5	21.0	20.0	3.6	3.5	45.2	8.7	11.0	9.0
1	Manamar Lay or Bust Dry-Mash	10.1	21.1	18.0	5.0	3.0	45.8	6.0	7.0	12.0
3	Manamar Life Cycle Mash	11.0	18.2	16.0	4.6	3.5	50.2	6.9	7.0	9.1
1	Milkmaid 24% Sweetened Dairy Ration	12.5	24.1	24.0	3.4	4.0	44.3	7.0	10.0	8.7
2	Milkmaid 20% Dairy Ration	12.5	20.4	20.0	3.6	4.0	47.8	8.1	10.0	7.6
1	Milkmaid 20% Dairy Ration with Manamar	13.6	19.4	20.0	3.4	4.0	50.2	6.7	10.0	6.7
3	Park & Pollard Breeder Mash	11.2	22.2	20.0	5.2	4.5	46.7	6.6	7.0	8.1
1	Park & Pollard Chick Scratch	15.4	12.1	10.0	4.2	2.0	64.5	1.7	3.0	2.1
1	Park & Pollard Chick Starter (1937 registration)	13.0	19.0	17.0	4.2	3.5	48.3	5.4	5.0	10.1
2	Park & Pollard Chick Starter	12.7	17.5	17.0	4.7	3.5	49.4	6.2	6.0	9.5
2	Park & Pollard Fleshing Pellets	13.0	16.6	16.0	4.3	4.0	53.9	6.2	7.0	6.0
2	Park & Pollard Growing Feed	11.8	18.0	14.0	4.5	3.0	50.7	7.0	7.0	8.0
1	Park & Pollard Horse Feed	12.0	12.0	10.0	4.3	3.5	61.1	7.1	9.0	3.5
1	Park & Pollard Manamar Fitting Ration	11.8	12.1	12.0	2.7	3.5	58.3	6.1	7.0	6.0
2	Park & Pollard Pelleted Scratch	12.2	13.7	12.0	3.7	3.0	58.5	6.5	6.0	5.4

[19] Phosphoric acid 10.0 [20] Phosphoric acid 8.0 [21] Phosphoric acid 14.4

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Park & Pollard Co.—Concluded									
1	Park & Pollard Starter & Broiler Mash	11.1	21.0	18.0	5.0	4.0	48.3	5.8	6.0	8.8
3	Park & Pollard Stock Feed	11.7	10.8	9.0	3.8	4.0	59.2	8.5	12.0	6.0
3	Park & Pollard Turkey Grower	11.1	21.4	20.0	5.4	4.0	47.1	6.2	7.0	8.8
2	Park & Pollard Heavy Wheat Mixed Feed	12.7	16.7	15.5	3.6	3.35	57.2	5.8	8.0	4.0
2	Yankee Horse Feed	14.1	10.8	10.0	3.9	3.5	60.0	7.4	9.0	3.8
	George H. Parker Grain Co.									
2	Parker's Egg Mash	11.5	18.8	18.0	5.5	5.0	47.2	7.6	7.0	9.4
2	Parker's Special Dairy Ration	11.4	21.7	19.0	4.3	4.0	45.5	9.1	12.0	8.0
	Parrish & Heimbecker, Ltd.									
1	Parrheim Pure Wheat Bran	11.1	19.2	15.0	5.1	3.5	50.2	9.0	11.5	5.4
	Patent Cereals Co.									
1	Hominy Feed	11.1	13.1	10.0	7.1	5.0	60.6	4.6	5.0	3.5
	Pecos Valley Alfalfa Mill Co.									
3	Peevee Alfalfa Leaf Meal	9.3	21.1	20.0	2.5	2.5	40.3	16.1	18.0	10.7
	Penick & Ford Ltd., Inc.									
1	Douglas Corn Gluten Feed	12.8	27.4	25.0	1.7	1.5	44.7	7.4	8.5	6.0
	Perkins Oil Co.									
1	Golden Rod Brand Cotton Seed Meal	8.7	41.7	41.0	7.1	5.0	28.0	7.8	12.0	6.7
	Phaneuf & Son									
1	O-Boy All Mash Starter	11.7	19.3	18.0	5.7	5.0	51.2	5.4	6.0	6.7
1	O-Boy Egg Mash	12.7	19.0	17.0	5.1	4.5	50.9	5.7	7.5	6.6
1	O-Boy Grower	10.9	19.4	17.0	5.4	4.5	56.1	6.1	7.5	2.1
	Pillsbury Flour Mills Co.									
1	Pillsbury's Hard Wheat A. Middlings with Screenings not exceeding mill run	12.1	19.1	16.0	4.3	4.0	55.6	5.1	6.0	3.8

1	Pillsbury's Hard Wheat Standard B. Middlings with Screenings not exceeding mill run	11.9	16.1	15.0	4.1	4.0	55.7	7.5	9.5	4.7
2	Pillsbury's Fancy Wheat Mixed Feed with Screenings not exceeding mill run	12.7	17.0	15.0	4.1	4.0	56.2	5.8	8.5	4.2
1	Pillsbury's XX Daisy	13.0	17.9	16.0	4.5	4.0	58.1	3.4	4.0	3.1
	Maurice Pincoffs Co.									
4	41% Protein Cotton Seed Meal	8.8	41.7	41.0	6.9	5.0	26.9	9.8	11.0	5.9
	Pittsburgh Plate Glass Co., Linseed Oil Division									
1	Red Wing 32% Protein Old Process Linseed Meal	10.5	35.4	32.0	5.2	4.5	35.4	7.6	9.0	5.9
	W. N. Potter Grain Stores, Inc.									
1	A.D.P. 24% Dairy Ration	11.7	26.7	24.0	4.6	4.0	44.9	6.3	10.0	5.8
1	Potter's Sweetened Dairy Ration	12.3	21.0	20.0	4.3	4.0	47.8	7.3	10.0	7.3
	H. C. Puffer Co.									
1	Egg-M-On Growing Feed	11.5	20.7	18.0	5.2	4.0	49.3	4.6	7.0	8.7
1	Egg-M-On Laying Mash	11.1	22.7	20.0	5.5	4.0	45.3	5.8	9.0	9.6
1	Egg-M-On Starting & Broiler Mash	11.6	17.1	16.0	5.1	4.0	54.0	4.6	6.0	7.6
1	Producer Dairy Feed	11.5	23.1	20.0	4.5	3.5	46.5	7.6	10.0	6.8
1	Sweetened Producer Dairy Feed	10.2	20.8	20.0	3.5	3.5	43.2	15.1	12.5	7.2
	Quaker Oats Co.									
1	Big Egg All Mash Starter-Grower	10.1	16.1	16.0	5.6	4.5	53.6	7.3	8.0	6.7
1	Big Egg Laying Mash	10.1	17.8	18.0	5.1	4.0	54.2	6.9	8.0	5.9
1	Ful-O-Pep Egg-Breeder Mash	9.8	21.2	20.0	5.6	4.5	46.0	8.3	8.0	9.1
1	Ful-O-Pep Turkey Grower	9.6	21.5	20.0	5.3	4.5	49.6	5.1	8.0	8.9
1	Peterboro Oat Feed	6.1	5.6	4.0	1.9	1.5	46.6	33.7	32.0	6.1
1	Quaker Ful-O-Pep Chick Starter	10.5	18.3	17.0	5.7	5.0	53.7	5.9	7.0	5.9
2	Quaker 20% Protein Dairy Ration	10.1	22.8	20.0	4.3	4.0	43.4	11.4	12.0	8.0
1	Quaker 16% Protein Dairy Ration	10.6	16.1	16.0	3.0	3.0	49.6	12.6	13.5	8.1
1	Quaker Ful-O-Pep Developer	9.2	16.1	15.0	5.6	5.0	56.3	7.4	9.0	5.4
2	Quaker Ful-O-Pep Egg Mash	9.2	20.6	20.0	6.0	4.5	48.6	7.2	8.0	8.4
1	Quaker Ful-O-Pep Growing Mash	8.8	20.0	19.0	6.3	5.0	51.5	5.9	6.0	7.5
1	Quaker Green Cross Horse Feed	13.0	11.0	10.0	2.7	2.5	56.7	10.6	12.0	6.0
1	Quaker Pig-N-Hog Feed	9.4	18.5	16.0	1.7	3.5	50.5	8.3	10.0	8.6
3	Quaker Sugared Schumacher Feed	10.6	11.1	10.0	3.5	3.0	58.2	9.8	12.0	6.8
1	Quaker Thorobred Horse Feed	13.1	12.1	10.5	3.8	3.5	60.0	7.0	8.0	4.0
2	Vim Oat Mill Feed	7.3	6.1	5.0	1.8	1.5	51.0	28.0	30.0	5.8
1	Sugared Vim Oat Mill Feed	9.4	5.5	5.0	1.6	1.25	51.3	25.7	27.5	6.5
2	Yellow Hominy Feed	8.7	11.9	10.0	6.0	5.0	66.0	4.4	5.0	3.0
	Ralston Purina Co.									
2	Corn Feed Meal	15.1	9.2	8.5	1.6	3.0	66.7	2.6	5.0	1.8
1	41% Protein Cottonseed Meal	8.5	39.5	41.0	5.8	5.0	28.7	10.9	12.0	6.6

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Ralston Purina Co.—Concluded									
3	Purina Broiler Chow	12.2	20.2	18.0	4.8	4.0	50.8	6.0	7.0	6.0
3	Purina Bulky Las Chow	14.5	11.9	9.0	2.1	1.3	51.7	11.4	15.0	8.4
1	Purina Bulky Omolene	13.7	12.0	10.0	3.9	3.2	58.4	7.5	11.0	4.5
4	Purina Calf Startena	12.7	20.9	19.5	3.4	3.0	48.5	7.8	9.5	6.7
2	Purina Calf Starting Chow	11.1	28.2	27.0	4.1	3.2	47.1	4.1	5.0	5.4
1	Purina Chick Chow (Fine)	14.0	12.6	10.0	2.5	2.0	67.5	2.0	4.0	1.4
5	Purina Chick Growena	12.0	18.0	15.0	4.4	3.5	53.5	6.5	7.0	5.6
2	Purina Chick Startena	12.7	20.5	18.0	4.9	4.0	50.4	4.8	7.0	6.7
3	Purina Chicken Fatena	11.3	17.4	14.0	4.8	4.0	57.0	5.7	7.5	3.8
6	Purina Dry and Freshening Chow	14.1	14.3	12.5	2.7	2.5	49.4	10.8	14.0	8.7
1	Purina Duck Breeder Chow	11.9	21.0	19.5	4.8	4.0	51.4	4.5	5.5	6.4
1	Purina Egg Chowder	9.7	21.3	19.0	5.8	3.5	46.4	5.8	8.0	11.0
4	Purina Family Flock Chow	11.8	19.0	18.0	4.6	3.5	47.7	6.9	8.0	10.0
1	Purina Growing Chow	11.8	19.9	17.0	4.8	3.5	50.3	5.5	7.0	7.7
1	Purina Heifer Growing Chow	14.7	16.0	14.0	3.4	2.5	49.4	8.5	14.0	8.0
3	Purina Lay Chow	10.9	22.3	21.0	5.5	4.0	44.8	6.7	8.0	9.8
8	Purina Layena (Complete Ration)	11.8	17.1	15.5	4.7	3.5	53.3	5.3	8.0	7.8
4	Purina Milk Chow (For Dairy Cows)	14.6	18.5	18.0	3.7	3.2	48.0	7.9	12.0	7.3
5	Purina Milking Cow Chow (24%)	12.2	24.7	24.0	4.6	4.0	41.8	9.1	12.0	7.6
7	Purina Milking Cow Chow (20%)	12.5	21.3	20.0	4.2	4.0	46.1	8.9	12.0	7.0
3	Purina Milking Cow Chow (16%)	13.0	17.7	16.0	3.4	3.5	49.8	8.7	12.0	7.4
4	Purina Omolene	13.4	12.4	10.0	3.7	3.2	59.9	6.5	11.0	4.1
3	Purina Pig Growena	14.6	15.0	14.0	3.3	2.0	55.6	6.0	8.0	5.5
1	Purina Rabbit Chow	12.7	17.7	16.0	4.6	3.5	52.6	7.6	8.0	4.8
1	Purina Rabbit Chow (Complete Ration)	13.3	17.2	13.5	3.3	2.5	50.5	9.8	16.0	5.9
1	Purina Turkey Breeder Chow	11.1	24.0	23.0	6.4	5.0	42.9	6.2	8.0	9.4
5	Purina Turkey Growena	11.7	19.5	18.0	1.9	4.0	52.5	5.6	7.0	5.8
1	Purina Turkey Growing Chow	12.3	22.7	21.0	5.2	3.5	47.3	6.1	8.0	6.4
2	Purina Turkey Startena	11.3	27.7	26.0	5.3	4.5	43.9	4.5	6.0	7.3
	John Reardon & Sons Co.									
3	Rearco 72 Feeding Bone [22]	4.3	7.8	5.0	0.4	–	–	–	–	83.3
2	Register Brand Cod & Haddock Fish Meal [23]	10.2	64.8	62.0	3.8	3.0	–	–	–	21.5
1	60% Register Brand Meat Scraps [24]	5.9	61.6	60.0	9.6	6.0	–	–	–	22.7

1	55% Register Brand Meat Scraps [25]	6.3	53.0	55.0	12.4	6.0	–	–	–	27.6
2	50% Register Brand Meat & Bone Scraps [25]	5.6	49.6	50.0	11.0	6.0	–	–	–	32.9
2	45% Register Brand Meat & Bone Scraps [27]	6.1	44.1	45.0	11.8	6.0	–	–	–	35.2
	D. F. Riley									
1	Riley's Chick & Broiler Ration	11.2	18.3	18.0	4.1	4.0	55.0	4.0	4.5	7.4
1	Riley's 20% Dairy Ration	10.2	22.2	20.0	5.0	4.5	47.6	8.8	9.0	6.2
1	Riley's Growing Mash	11.9	14.8	15.0	4.3	4.0	57.9	4.2	5.0	6.9
1	Riley's Laying Mash	10.9	22.1	20.0	4.6	4.5	48.7	4.9	6.0	8.8
	Rodney Milling Co.									
2	Heart of America Pure Wheat Bran	13.6	16.7	16.5	4.4	3.5	49.6	9.3	10.0	6.4
	Edward Roy									
1	Roy's Chick Starter & Grower	12.5	17.2	18.0	4.4	4.5	52.3	4.7	7.0	8.9
2	Roy's Hen Mash	12.0	17.6	18.0	4.5	4.5	49.8	6.3	7.0	9.8
	H. M. Rubin Co.									
1	Rubco Meat Bone Scrap [28]	6.5	44.6	45.0	7.6	5.0	–	–	–	38.6
	Russell-Miller Milling Co.									
2	Hard Wheat Occident Bran	14.0	17.5	14.0	4.3	4.0	50.2	8.3	11.5	5.7
2	Hard Wheat Occident Standard Middlings	12.3	17.6	15.0	4.6	4.0	53.5	7.2	9.5	4.8
5	Hard Wheat Occident Mixed Feed	12.9	19.0	15.0	4.6	4.5	51.3	7.1	9.5	5.1
	Ryther & Warren									
2	Blue Tag Dairy Ration	10.8	22.3	20.0	5.1	4.5	47.1	8.3	10.0	6.4
3	Minot Chick Mash	10.9	18.4	18.0	4.5	4.0	53.5	4.6	5.0	8.1
2	Minot Complete Laying Mash	11.7	15.2	15.0	4.7	3.5	55.7	5.8	6.0	6.9
2	Minot Growing Mash	11.1	19.7	18.5	5.1	4.5	48.5	6.4	6.0	9.2
2	Minot Milk Egg Mash	11.2	18.5	17.0	4.8	4.5	52.1	5.4	7.0	8.0
2	Minot Poultry Mash	11.3	19.6	18.0	5.4	4.5	48.6	5.3	8.0	9.8
2	Minot Special Dairy Ration	11.2	21.0	20.0	5.7	4.5	48.8	7.9	10.0	5.1
	St. Albans Grain Co.									
2	Brewers' Dried Grains	8.1	26.4	21.0	5.8	5.0	42.2	14.1	15.0	3.4
1	Corn Distillers' Dried Grains	3.9	25.9	28.0	10.4	7.0	43.8	14.5	14.0	1.5
1	Hygrade 12 Fitting Ration	14.3	14.5	12.0	4.3	4.0	54.2	6.4	8.0	6.3
3	Hygrade Horse Feed	14.5	11.0	9.5	3.8	3.25	59.9	6.2	9.0	4.6
3	Hygrade 24 Milk Ration (1937 registration)	11.4	25.3	24.0	4.3	3.5	43.9	7.8	9.0	7.3
1	Hygrade 24 Milk Ration	12.7	23.9	24.0	3.9	4.0	44.6	7.1	8.5	7.8
1	Hygrade 20 Milk Ration	13.9	20.9	20.0	3.6	3.5	47.5	6.8	8.5	7.3
5	Utility 20 Dairy Ration	11.6	21.2	20.0	3.5	3.5	45.1	10.5	12.0	8.1
2	Utility 16 Dairy Ration	12.0	17.8	16.0	3.2	3.0	51.2	8.2	13.0	7.6
3	Wirthmore Baby Chick Scratch	13.0	12.9	10.0	4.1	2.5	66.8	1.5	3.5	1.7

[22] Phosphoric acid 33.9
[25] Phosphoric acid 8.6
[26] Phosphoric acid 12.6
[27] Phosphoric acid 13.4
[28] Phosphoric acid 15.6
[29] Phosphoric acid 10.2

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	St. Albans Grain Co.—Concluded									
2	Wirthmore Baby Chick Starter	12.0	20.0	18.0	4.9	4.0	51.2	4.6	5.0	7.3
2	Wirthmore 25 Balanced Ration	11.4	26.9	25.0	4.8	4.5	42.6	7.8	8.5	6.5
2	Wirthmore Breeder Mash	11.3	22.2	20.0	5.2	4.5	46.7	5.3	7.0	9.3
2	Wirthmore Calf Starter Pellets	11.1	25.0	24.0	5.6	5.5	49.6	3.6	4.0	5.1
4	Wirthmore Complete Chick Starter and Broiler Ration	12.2	19.7	17.5	4.8	4.0	51.3	4.4	5.5	7.6
2	Wirthmore Complete Egg Ration	13.3	16.4	15.0	4.2	4.0	53.5	5.7	6.0	6.9
1	Wirthmore Complete Growing Ration	12.3	14.8	14.0	4.4	3.75	58.6	5.2	6.0	4.7
4	Wirthmore Complete Laying Ration	13.8	15.9	15.0	4.8	4.0	54.6	4.2	5.0	6.7
2	Wirthmore Complete Rabbit Ration	11.9	13.9	14.0	3.3	3.0	54.6	9.4	12.0	6.9
5	Wirthmore 20 Dairy Feed	12.9	20.1	20.0	4.4	4.5	49.5	7.0	8.0	6.1
1	Wirthmore Dairy Feed with Beet Pulp	12.3	22.1	20.0	4.0	4.0	48.1	7.1	11.0	6.4
2	Wirthmore 16 Dairy Ration	12.1	18.7	16.0	4.3	4.0	50.9	6.5	8.0	7.5
4	Wirthmore 14 Fitting Ration	13.1	16.0	14.0	4.5	4.0	53.5	6.3	7.0	6.6
2	Wirthmore Fleshing Pellets	11.2	16.3	15.0	4.3	4.5	55.7	5.7	6.5	6.8
1	Wirthmore Fleshing & Fattening Pellets	10.4	16.3	15.0	5.0	4.5	56.0	5.3	6.0	7.0
4	Wirthmore Fodder Greens	12.4	13.9	10.0	3.4	3.0	52.7	9.9	15.0	7.7
2	Wirthmore Growing Mash (1937 registration)	11.5	16.4	15.0	4.8	4.5	54.8	6.0	6.0	6.5
2	Wirthmore Growing Mash	13.2	18.6	17.5	4.9	4.5	49.1	5.6	6.0	8.6
5	Wirthmore Horse Feed	13.8	10.7	9.8	3.9	3.25	62.3	5.6	9.0	3.7
1	Wirthmore Laying Mash	12.7	20.1	20.0	5.1	4.0	47.4	5.3	7.0	9.4
4	Wirthmore Laying Pellets	12.7	16.6	15.0	4.4	4.0	55.1	4.8	6.0	6.4
2	Wirthmore Pig & Hog Feed	12.3	18.4	17.0	4.6	4.0	49.0	6.0	9.0	9.7
1	Wirthmore Rabbit Pellets	12.0	14.0	14.0	4.0	3.5	56.8	6.4	9.0	6.8
1	Wirthmore 32% Ration	12.3	31.2	32.0	4.8	4.0	37.5	6.2	8.0	8.0
2	Wirthmore Record Ration	12.4	20.0	20.0	4.3	4.5	49.2	7.7	8.5	6.4
4	Wirthmore Stock Feed	11.4	10.0	9.0	4.9	4.0	59.6	8.7	9.5	5.4
1	Wirthmore Turkey Breeder Ration	9.6	25.6	24.0	4.9	4.5	45.8	4.9	7.0	9.2
2	Wirthmore Turkey Fattening Ration	11.0	19.6	16.0	4.5	4.5	52.8	4.9	7.0	7.2
1	Wirthmore Turkey Growing Ration	10.6	21.4	20.0	4.9	4.0	50.5	5.2	7.0	7.4
1	Wirthmore Turkey Starting Ration	10.9	25.9	24.0	5.0	4.5	43.8	5.2	7.0	9.2
4	Wirthmore Wheat Feed with Screenings not exceeding mill run	12.4	16.5	15.0	4.0	3.75	55.8	6.5	8.0	4.8
1	Wirthmore Flour Middlings with Screenings not exceeding mill run	11.0	15.6	15.0	4.3	4.0	61.1	4.5	6.0	3.5

	Schenley Products Co., Inc.									
1	Schenley Mark of Merit Corn Distillers Dried Grains	7.3	29.9	30.0	7.1	8.0	40.6	12.4	13.0	2.7
2	Schenley Mark of Merit Corn Distillers Dried Grains	9.1	26.7	28.0	8.2	8.0	42.3	10.9	13.0	2.8
	Sherwin Williams Co.									
1	Sherwin Williams Pure Old Process 34% Linseed Meal	10.1	35.3	34.0	5.3	4.5	35.4	8.0	9.0	5.9
2	Sherwin Williams Pure Old Process 32% Linseed Meal	9.3	31.9	32.0	5.8	4.5	35.8	8.5	9.0	5.7
	Sherwin Williams Co. of Canada, Ltd.									
1	Sherwin Williams Screwpress Linseed Oil Cake Meal	9.7	33.0	35.0	8.6	6.5	35.8	6.9	8.0	6.0
	Mrs. Annie P. Smith									
1	Pentucket Laying Mash	12.1	17.9	16.2	5.0	3.5	49.3	7.8	8.0	7.9
	Smith-Bodfish-Swift Co.									
1	Paramount Mash	10.0	20.1	20.0	4.3	3.5	49.0	8.0	8.0	8.3
	Snow Brokerage Co.									
4	Snowline Brand Alfalfa Leaf Meal	9.9	18.0	20.0	2.3	2.5	38.7	20.6	18.0	10.5
1	Snowline Brand Alfalfa Stem Meal	8.8	14.8	10.0	1.6	1.0	38.3	27.0	40.0	9.5
	Southern Cotton Oil Co.									
4	SCO-CO Brand 41% Prime Quality Cottonseed Meal	8.5	40.6	41.0	6.2	5.0	27.6	10.5	13.0	6.6
	Southwestern Milling Division of Standard Milling Co.									
2	Red Turkey Pure Wheat Bran	13.4	15.4	15.0	4.0	3.5	51.0	9.8	10.0	6.4
	Squler & Co.									
1	Squiers Buttermilk Egg Mash	11.3	17.9	18.0	5.2	5.0	51.9	6.8	7.0	6.9
	A. E. Staley Manufacturing Co.									
2	Staley's Corn Gluten Feed	11.2	29.3	25.0	1.9	1.0	42.6	7.0	8.0	8.0
3	Staley's Soybean Oil Meal	10.1	43.7	41.0	4.2	4.0	31.3	5.1	7.0	5.3
	State Mill & Elevator									
1	Dakota Maid Pure Bran	12.8	16.1	15.0	5.1	5.0	49.6	10.1	12.0	6.0
1	Dakota Maid Standard Wheat Middlings with Screenings not exceeding mill run	11.1	18.0	16.0	4.6	5.0	56.2	5.8	8.0	4.3
	Stratton & Co.									
5	Stratton's Wheat Bran with Screenings not exceeding mill run	12.9	14.5	14.0	4.5	4.0	54.6	8.1	11.0	5.4
2	Stratton's Standard Wheat Middlings	13.1	14.1	14.0	4.6	4.0	58.0	5.7	9.0	4.5
5	Stratton's Mixed Feed	13.2	14.6	13.5	4.3	4.11	55.6	7.1	7.13	5.2
1	Stratton's "24" Stock Feed	10.5	8.7	7.5	6.4	2.83	58.4	12.2	14.43	3.8

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Swift & Co. Oil Mills									
1	Cotton Bloom Cotton Seed Meal 41%	5.9	43.6	41 0	7 4	5.0	29 0	7.6	10.0	6.5
	C. H. Symmes & Co.									
1	The Ideal Dairy Ration	13.5	20.2	20 0	3.5	3.5	49.0	6.6	8.5	7 2
	Texas Star Flour Mills									
1	Wheat Bran with Screenings not exceeding mill run	12.5	17.2	15.0	3.8	4 0	50.7	9 7	10.5	6.1
	Tioga Mills, Inc.									
1	E-Gee 20% Dairy Feed	12 4	23.1	20.0	4 1	3 5	45.8	8.1	10.0	6.5
1	Tasty Laying Food	10 9	23.0	20.0	4 4	4.0	46.9	6.0	7.5	8.8
1	Ti-O-Ga Starter and Grower	11.7	20.2	16.5	4.5	4.0	49.4	6.4	7.5	7.8
	Union Starch & Refining Co.									
1	Union Corn Gluten Feed	10.5	27.4	25.0	2.0	1.0	47.8	6.8	8 0	5.5
2	Union Corn Gluten Meal	8.6	46.7	43.0	1.5	1.0	41.0	1.1	3 0	1.1
	United Cooperative Farmers, Inc.									
1	United Farmers Fitting Ration	13.0	15.8	12.0	4.0	3.5	53 4	7.3	7.0	6.5
2	United Farmers Growing Mash	11.4	18 2	16.0	5 4	4.0	51.1	6.1	7 0	7.8
2	United Farmers Horse Feed	13.6	12.1	10.5	3 7	3.5	62.0	5.2	6.5	3.4
2	United Farmers Milk Egg Mash	11.5	19.1	17.0	5.4	4 0	49 7	5 7	6.5	8.6
2	United Farmers Milkmaker	11.2	23.1	20 0	4.6	4 0	46.6	7 7	8.0	6 8
2	United Farmers Milk Pep	11 2	26.1	24.0	4.6	4.5	43 4	7.6	8.0	7.1
1	United Farmers Starting Mash	13.3	18.4	16 0	4 1	4.0	51.3	4.5	6.0	8.4
	United Farmers Co-Operative Creamery Association, Inc									
3	Dried Skim Milk [29]	5.1	35.6	32.0	0.7	0 5	–	–	–	8.1
	Unity Feeds, Inc.									
1	Life Saver 20% Dairy Ration	12.9	20.3	20.0	3 7	3.0	44.5	11.7	11.0	6 9
2	Paycheck 24% Dairy Ration	11.5	25.1	24.0	5 0	4.0	43.2	9.1	11.0	6.1
4	Paycheck 20% Dairy Ration	11 7	21.5	20.0	5.0	4.0	47.1	8.3	11 0	6 4

1	Paycheck Laying Mash	12.7	19.2	18.0	5.1	3.0	48.8	6.0	8.0	8.2
1	Unity Chick Scratch Feed (Fine)	13.4	11.9	10.0	3.0	2.5	68.6	1.7	3.0	1.4
1	Unity Chick Starter	11.8	21.8	17.0	3.9	3.5	49.3	4.6	5.0	8.6
2	Unity Complete Starting and Broiler Mash	12.7	19.5	17.0	4.4	3.5	50.3	4.7	5.5	8.4
2	Unity 24% Dairy Ration	12.4	25.3	24.0	4.8	4.0	42.5	8.1	10.0	6.9
1	Unity 20% Dairy Ration	12.9	23.1	20.0	4.9	4.0	45.4	7.6	10.0	6.1
1	Unity Fitting Ration	13.5	14.7	12.0	5.3	3.5	54.4	5.6	7.0	6.5
2	Unity Growing Mash	12.3	16.5	14.0	5.1	3.0	54.4	5.3	7.0	6.4
2	Unity Horse Feed	14.1	11.7	10.0	3.6	3.0	61.2	5.8	9.0	3.6
2	Unity Laying Mash	11.8	20.7	18.0	5.1	3.0	48.0	5.6	7.0	8.8
1	Unity Stock Feed	9.9	10.1	8.5	5.6	4.0	59.5	10.0	12.0	4.9
1	Unity Turkey Starter and Growing Mash	10.9	23.4	22.0	4.5	4.0	45.1	5.8	7.0	10.3
	Van Iderstine Co.									
1	Vico Quality Meat and Bone Scraps [30]	9.1	50.1	50.0	4.4	5.0	–	–	–	32.6
	Arthur Ventura Grain Co.									
2	Ventura's Laying Mash	12.1	17.9	19.0	4.9	5.0	49.3	6.4	7.0	9.4
1	Ventura's Starter	12.8	17.0	16.0	5.1	4.0	50.7	5.2	6.0	9.2
	Vitality Mills, Inc.									
1	Vitality Corn Feed Meal	14.8	9.4	9.0	5.4	3.0	65.6	2.9	3.5	1.9
1	Vitality 20% Dairy Ration	14.2	19.4	20.0	3.3	4.0	48.3	7.2	9.0	7.6
2	Vitality Homestead Egg Mash	11.8	19.7	18.0	4.6	3.5	48.1	7.2	8.0	8.6
	Hiram Walker & Sons, Inc.									
1	Corn Distillers' Dried Grains	9.6	27.9	28.0	8.6	6.0	39.7	10.6	13.0	3.6
	Ward Dry Milk Co.									
1	Ward's Pure Dried Buttermilk	8.3	31.5	30.0	6.6	5.0	–	–	–	8.9
2	Ward's Pure Dried Skim Milk [31]	8.7	32.0	32.0	1.2	1.0	–	–	–	7.0
	C. P. Washburn Co.									
2	"Made Right" Balanced Ration	11.1	24.1	22.0	5.0	5.0	44.3	8.7	10.0	6.8
1	"Made Right" Complete Broiler Ration (1937 registration)	10.6	19.0	18.0	4.6	4.5	51.6	6.9	5.5	7.3
1	"Made Right" Complete Broiler Ration	12.2	17.3	18.0	4.4	4.5	51.3	6.8	7.0	8.0
2	"Made Right" Complete Layer	12.0	17.8	16.0	4.7	4.5	52.4	6.1	5.5	7.0
2	"Made Right" 16% Dairy Feed	11.7	19.3	16.0	4.4	4.0	47.7	10.1	9.0	6.8
3	"Made Right" Dry Mash	11.2	20.5	20.0	4.5	4.5	48.7	6.7	7.0	8.4
2	"Made Right" Fitting Ration	13.8	15.2	13.5	3.7	3.5	52.7	7.8	9.0	6.8
3	"Made Right" Horse Feed	13.6	10.8	8.0	3.6	5.0	65.1	4.3	10.0	2.6
2	"Made Right" Mixed Feed	12.6	16.4	15.0	4.0	4.0	54.2	7.5	8.0	5.3
2	"Made Right" Starting & Growing Feed	11.3	19.3	20.0	4.5	5.0	49.1	7.3	6.0	8.5
3	"Made Right" Sweet Dairy Feed	11.9	23.1	20.0	4.4	4.0	45.6	6.9	8.0	8.1
2	"Made Right" White Stock Feed	11.1	11.1	8.0	5.5	3.5	60.8	8.0	10.0	3.5

[29] Lactose 50.5 [30] Phosphoric acid 12.0 [31] Lactose 51.1

Complete Average Analyses of Feeds Collected (Per Cent)—Concluded

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	H. K. Webster Co.									
1	Blue Seal All-Mash Growing Ration	14.7	15.8	14.5	4.5	4.0	54.2	4.7	5.0	6.1
1	Blue Seal Beet Pulp Dairy Ration	10.4	23.2	22.0	4.5	4.5	44.9	10.4	11.0	6.6
2	Blue Seal Breeders' Mash	10.8	20.8	19.0	5.5	4.0	46.8	5.3	6.0	10.8
1	Blue Seal Broiler Ration	13.3	20.2	20.0	5.4	4.5	46.5	5.7	6.0	8.9
2	Blue Seal Chick Builder	11.8	21.0	18.0	5.4	4.0	46.8	4.9	6.5	10.1
2	Blue Seal Chick Starter	11.1	20.6	18.0	5.7	4.0	50.4	5.6	6.0	6.6
1	Blue Seal College Mash	9.7	19.7	17.0	4.7	4.5	49.5	4.9	6.0	11.5
2	Blue Seal "20" Dairy Ration	12.5	23.2	20.0	4.5	4.0	45.7	7.8	9.0	6.3
1	Blue Seal "18" Dairy Ration	14.1	18.1	18.0	4.3	4.5	51.2	6.4	9.0	5.9
2	Blue Seal Egg Mash	12.0	21.1	19.0	5.2	4.5	46.6	4.8	6.0	10.3
2	Blue Seal Fitting Ration	13.0	15.3	13.0	4.5	4.5	54.8	6.5	7.0	5.9
1	Blue Seal Fleshing Pellets	12.6	14.8	15.0	4.5	5.0	56.1	5.0	4.0	7.0
2	Blue Seal Growing Mash	11.0	21.0	18.0	5.5	4.0	47.4	5.9	6.5	9.2
2	Blue Seal "Hom-Mix" 24% Dairy Ration	11.3	24.6	24.0	5.1	4.5	44.0	9.3	9.0	5.7
1	Blue Seal Horse Feed	12.2	11.9	10.5	4.0	3.5	61.2	4.7	7.5	6.0
2	Blue Seal Improved All-Mash Ration	12.8	17.1	15.0	5.6	4.5	51.6	4.5	4.0	8.4
2	Blue Seal Improved Balanced Ration	11.7	24.6	24.0	4.6	4.5	45.0	7.9	8.5	6.2
2	Blue Seal Laying Mash	11.6	21.3	20.0	5.1	4.0	45.5	4.8	6.0	11.7
1	Blue Seal "Sixteen" Dairy Ration	10.7	16.7	16.0	4.6	4.5	53.8	7.4	9.0	6.8
2	Blue Seal Special 20% Dairy Ration	11.7	22.4	20.0	4.6	4.5	44.1	11.1	10.0	6.1
1	Blue Seal Stock Feed	9.6	12.3	8.5	4.0	3.5	57.3	10.9	11.0	5.9
	West-Nesbitt, Inc.									
1	All Pure 20% Milk Ration	11.4	23.8	20.0	5.1	4.0	42.7	8.2	10.0	8.8
1	Ideal 20% Dairy Ration	12.5	21.3	20.0	4.0	3.0	43.0	8.6	12.0	10.6
1	Ideal 16% Dairy Ration	10.9	18.9	16.0	3.9	3.0	47.2	11.1	14.0	8.0
1	Ideal Egg Mash	10.9	19.9	18.0	5.6	4.0	49.0	7.2	7.0	7.4
1	Pure Feed Broiler Mash	11.2	20.5	19.0	5.2	4.0	48.8	5.8	6.0	8.5
1	Pure Feed Chick Grains	12.5	12.0	11.0	3.4	4.5	69.1	1.5	3.0	1.5
1	Pure Feed Developer Mash	9.7	19.3	18.0	6.5	4.0	50.1	6.0	6.5	8.4
1	Pure Feed Egg Mash	10.2	20.7	20.0	6.3	4.0	47.4	6.5	6.0	8.9
1	Pure Feed Horse Ration	12.7	12.2	9.0	3.7	3.0	60.7	7.2	10.0	3.5
1	Super Pure Sweetfeed Dairy Ration	11.9	25.8	24.0	4.6	4.0	40.6	8.4	10.0	8.7

	Est. M. G. Williams								
2	Williams' Balanced Ration	11.8	21.3	20.0	4.5	4.0	47.8	8.4	12.0	6.2
1	Williams' Chick Starter	12.5	17.8	17.0	4.1	4.0	53.3	4.4	7.0	7.9
2	Williams' Growing Mash	11.7	18.4	15.0	4.5	4.0	51.0	5.4	7.0	9.0
2	Williams' Laying Mash	12.0	17.3	16.0	4.7	4.0	50.8	6.2	7.0	9.0
2	Williams' Stock Feed	12.3	11.1	10.0	3.9	4.0	59.2	9.2	12.0	4.3
	Stanley Wood Grain Co.								
2	Bliss Dairy Ration	11.4	23.3	22.0	4.5	5.0	47.5	5.8	10.0	7.5
2	Preferred Complete Growing Ration	13.1	14.2	15.0	3.6	4.0	60.0	4.0	5.0	5.1
1	Preferred Complete Laying Ration	11.7	15.4	15.0	4.6	4.0	57.7	3.8	5.0	6.8
1	Preferred Laying Mash (1937 registration)	11.2	19.8	18.0	5.0	4.5	49.9	5.3	7.0	8.8
1	Preferred Laying Mash	12.1	19.7	20.0	5.2	4.5	47.3	6.5	7.0	9.2
2	Preferred Starting & Growing Feed	12.1	17.0	16.0	4.6	4.0	55.6	4.3	6.0	6.4
1	Woods Dairy Ration (1937 registration)	12.6	21.2	20.0	3.9	3.0	47.5	7.8	10.0	7.0
1	Woods Dairy Ration	13.1	24.5	20.0	3.9	4.0	44.1	7.4	10.0	7.0
	Worcester Grain & Coal Co.								
1	Just Right 24% Dairy Ration	11.6	25.1	24.0	4.9	4.5	44.3	7.5	9.0	6.9
1	Just Right 20% Dairy Ration	11.2	21.6	20.0	4.6	4.5	47.6	8.1	9.0	6.9
1	Just Right Growing Mash	11.4	16.1	16.0	4.3	4.0	53.9	5.3	6.0	9.0
1	Just Right Laying-Mash	11.8	16.1	18.0	4.9	4.0	51.4	5.5	7.0	10.3

Feeds Not Conforming to Guarantees

(Shortages of less than one per cent in protein or fat or an excess of less than one per cent in fiber are not listed)

Samples Collected	Samples Not Conforming to Guarantee	Manufacturer and Brand	Protein Deficiency Percent	Fat Deficiency Percent	Fiber Excess Percent
		Allied Mills, Inc.			
1	1	Wayne Hog Supplement	2.0	–	–
		American Distilling Co.			
3	3	"Pekinil" Brand Corn Distillers Dried Grains	1.9	–	–
		"Pekinil" Brand Corn Distillers Dried Grains	1.0	–	–
		"Pekinil" Brand Corn Distillers Dried Grains	1.7	–	–
		Arcady Farms Milling Co.			
3	1	Arcady 24% Open Formula Production Ration	1.3	–	–
3	1	Peerless Milk Ration	1.3	–	–
		Ashcraft-Wilkinson Co.			
3	1	Cow-Eta Brand 41% Protein Prime Quality Cottonseed Meal	1.9	–	–
		Atlantic Coast Fish By-Products Co.			
3	1	Phoenix Fish Meal	2.3	–	–
		Beacon Milling Co., Inc.			
4	1	Beacon Calf Grain Ration	1.5	–	–
		Borden Grain Co.			
2	1	Borden's Laying Mash	1.4	–	–
		Consolidated Rendering Co.			
2	1	Corenco 50% Meat and Bone Scrap	2.4	–	–
2	2	Corenco 45% Meat and Bone Scrap	2.4	–	–
		Corenco 45% Meat and Bone Scrap	3.1	–	–
		Corn Products Refining Co.			
2	1	Buffalo Corn Gluten Feed (Sweetened)	1.0	–	–
		Nicolas Courcy			
1	2	Courcy Dairy Feed	1.2	–	–
		Courcy Dairy Feed	2.2	–	–
		Curley Bros.			
2	1	Premier Stock Feed	–	2.1	–
		Delaware Mills, Inc.			
1	1	Delaware Laying Mash	1.9	–	–
3	1	Indian Sweet 20% Dairy Feed	–	1.3	–
4	1	Indian Laying Mash	1.1	–	–
		Denver Alfalfa Milling & Products Co.			
3	1	Alfalfa Meal	–	–	2.9
		Frank Diauto			
2	2	Diauto's Special Egg Mash	1.8	–	–
		Diauto's Special Egg Mash	2.0	–	–
		Dietrich & Gambrill, Inc.			
1	1	Gambrills Chick Starter	1.1	–	–
		Dreyer Commission Co.			
3	1	Dryco Wheat Bran	1.6	–	–
		East Bridgewater Farmers' Exchange, Inc.			
1	1	Exchange Dairy Feed	1.5	–	–
		Eastern Grain Co.			
1	1	E. G. Co. Stock Feed	–	–	2.2
		Eastern States Farmers' Exchange			
2	1	Eastern States 32% Supplement Feed	1.6	–	–
		Elmore Milling Co., Inc.			
1	1	Elmore 32% Supplemental Dairy Ration	3.2	–	–
2	1	Elmore's Sweet Digesto Dairy Feed	–	–	2.3
2	1	Elmore Turkey Growing Mash	1.0	–	–
		John W. Eshelman & Sons			
1	1	Eshelman Red Rose 24 Dairy Feed	2.3	–	–
1	1	Eshelman Red Rose 32 Mixing Ration	1.5	–	–
2	1	Eshelman S-O-S	–	–	1.6

Feeds Not Conforming to Guarantees—Continued

(Shortages of less than one per cent in protein or fat or an excess of less than one per cent in fiber are not listed)

Samples Collected	Samples Not Conforming to Guarantee	Manufacturer and Brand	Protein Deficiency Percent	Fat Deficiency Percent	Fiber Excess Percent
		Excelsior Milling Co.			
2	1	Camel Fancy Wheat Feed	1.8	–	–
		Farm Service Co.			
3	1	C Growing Mash	1.9	–	–
2	1	Diamond A Dairy Ration	–	–	1.3
4	2	N.E.C. Laying Mash	1.0	–	–
		N.E.C. Laying Mash	2.1	–	–
		Farmers Service Bureau			
1	1	Farmso Red Dog	2.9	–	–
		Flory Milling Co., Inc.			
4	2	Record Dairy Feed	–	1.4	–
		Record Dairy Feed	–	1.4	–
		Goode Grain Co.			
1	1	Goode Laying Mash	–	–	3.4
1	1	Goode Starting & Growing Mash	–	–	2.7
		D. H. Grandin Milling Co.			
1	1	Grandin's 24% Dairy Feed	1.0	–	–
5	3	Grandin's Laying Mash	1.4	–	–
		Grandin's Laying Mash	1.0	–	–
		Grandin's Laying Mash	2.0	–	–
1	1	M-S (Money Saver) Laying Mash	1.7	–	–
		Hales & Hunter Co.			
2	1	Red Comb Crate Fattener	–	1.2	–
		Humphreys-Godwin Co.			
9	2	Dixie Brand Prime 41% Protein Cottonseed Meal	1.1	–	–
		Dixie Brand Prime 41% Protein Cottonseed Meal	2.1	–	–
		Independent Tallow Co., Inc.			
3	3	Eggaday Brand Poultry Feed (Meat & Bone Scrap)	1.1	–	–
		Eggaday Brand Poultry Feed (Meat & Bone Scrap)	4.3	–	–
		Eggaday Brand Poultry Feed (Meat & Bone Scrap)	2.5	–	–
		Jaquith & Co.			
2	1	Dairy Ration	1.6	–	–
1	1	Starting Feed	–	–	2.4
		Lincoln Farm Products Corp.			
1	1	Farm Brand Meat and Bone Scrap	2.6	–	–
		Maine Fish Meal Co.			
3	3	Maine Vitamin D Fish Meal	1.3	3.6	–
		Maine Vitamin D Fish Meal	–	1.4	–
		Maine Vitamin D Fish Meal	–	2.4	–
		Maritime Milling Co., Inc.			
3	2	B-B Sweetened Bull Prand "20" Dairy Ration	–	1.0	–
		B-B Sweetened Bull Brand "20" Dairy Ration	–	1.2	–
1	1	B-B Bull Brand Dry and Fresh Cow Fitting Ration	1.7	–	–
1	1	B-B Growing Mash	–	–	1.2
4	1	B-B Daisy Egg Mash	1.2	–	–
3	1	Hi-Test Dairy Feed 20% Pro. Sweetened	1.0	–	–
		Middlesex County Farm Bureau Association			
3	1	Farm Bureau Starter & Broiler	1.1	–	–
		Geo. O. Moon & Co., Inc.			
3	1	Moon's 90 Molasses Horse Feed	–	1.0	–
5	2	Moon's Wheat Bran	2.1	–	–
		Moon's Wheat Bran	2.0	–	–
6	1	Moon's Fresh Ground Wheat Middlings	3.2	1.0	–
4	2	Moon's Fresh Ground Mixed Feed	–	1.0	–
		Moon's Fresh Ground Mixed Feed	1.7	–	–
6	2	U. S. 20% Dairy Ration	1.1	–	–
		U. S. 20% Dairy Ration	1.7	–	–

Feeds Not Conforming to Guarantees—Concluded

(Shortages of less than one per cent in protein or fat or an excess of less than one per cent in fiber are not listed)

Samples Collected	Samples Not Conforming to Guarantee	Manufacturer and Brand	Protein Deficiency Percent	Fat Deficiency Percent	Fiber Excess Percent
		Jas. F. Morse & Co.			
2	1	Morse's 45% Meat Scraps for Poultry	1.2	–	–
		New England Retail Grain Dealers Co-operative Association, Inc.			
3	1	New England Yankee 20% Dairy Ration	–	–	1.3
4	3	Stock Feed	2.1	–	6.6
		Stock Feed	1.2	–	5.3
		Stock Feed	–	–	4.5
		Ogden Grain Co.			
2	1	Cloverbloom 24% Dairy Feed	1.4	–	–
2	2	Pilgrim "Cackle" 20% Layer-Breeder	1.2	–	–
		Pilgrim "Cackle" 20% Layer-Breeder	1.1	–	–
5	4	Thrift 20% Dairy Feed	–	1.0	–
		Thrift 20% Dairy Feed	–	1.2	–
		Thrift 20% Dairy Feed	–	1.2	–
		Thrift 20% Dairy Feed	–	1.2	–
		H. C. Puffer Co.			
1	1	Sweetened Producer Dairy Feed	–	–	2.6
		Quaker Oats Co.			
1	1	Peterboro Oat Feed	–	–	1.7
		Ralston Purina Co.			
1	1	41% Protein Cottonseed Meal	1.5	–	–
		John Reardon & Sons Co.			
1	1	55% Register Brand Meat Scraps	2.0	–	–
		St. Albans Grain Co.			
1	1	Corn Distillers' Dried Grains	2.1	–	–
		Schenley Products Co., Inc.			
3	2	Schenley Mark of Merit Corn Distillers Dried Grains	–	1.4	–
		Schenley Mark of Merit Corn Distillers Dried Grains	2.3	–	–
		Sherwin Williams Co. of Canada, Ltd.			
1	1	Sherwin Williams Screwpress Linseed Oil Cake Meal	2.0	–	–
		Snow Brokerage Co.			
4	4	Snowline Brand Alfalfa Leaf Meal	1.9	–	1.5
		Snowline Brand Alfalfa Leaf Meal	–	–	3.9
		Snowline Brand Alfalfa Leaf Meal	3.0	–	3.0
		Snowline Brand Alfalfa Leaf Meal	2.1	–	1.8
		Southern Cotton Oil Co.			
4	1	SCO-CO Brand 41% Prime Quality Cottonseed Meal	1.3	–	–
		Arthur Ventura Grain Co.			
2	1	Ventura's Laying Mash	1.4	–	–
		C. P. Washburn Co.			
2	1	"Made Right" 16% Dairy Feed	–	–	2.6
3	2	"Made Right" Horse Feed	–	1.6	–
		"Made Right" Horse Feed	–	2.1	–
2	2	"Made Right" Starting & Growing Feed	–	–	1.2
		"Made Right" Starting & Growing Feed	1.2	–	1.3
		H. K. Webster Co.			
1	1	Blue Seal Fleshing Pellets	–	–	1.0
2	1	Blue Seal "Hom-Mix" 24% Dairy Ration	–	–	1.0
2	1	Blue Seal Special 20% Dairy Ration	–	–	1.2
		West-Nesbitt, Inc.			
1	1	Pure Feed Chick Grains	–	1.1	–
		Worcester Grain & Coal Co.			
1	1	Just Right Laying-Mash	1.9	–	–

Certified Ingredients

Allied Mills, Inc.

Wayne-Amco 24% Dairy Ration
Corn gluten meal, corn distillers' dried grains, brewers' dried grains, corn gluten feed, old process linseed oil meal, soybean oil meal, ground oats, corn meal and hominy meal, wheat bran, cane molasses, 0.5% steamed bone meal, 1.5% ground limestone, 1.0% salt, 0.03% iron oxide, 0.0005% potassium iodide, cottonseed meal.

Wayne-Amco 20% Dairy Ration
Cottonseed meal, brewers' dried grains, corn distillers' dried grains, ground oats, corn gluten feed, corn meal and hominy meal, soybean oil meal, corn gluten meal, old process linseed oil meal, wheat bran, cane molasses, steamed bone meal 0.5%, 1.5% ground limestone, 1.0% salt, 0.03% iron oxide, 0.0005% potassium iodide.

Wayne-Amco 16% Dairy Ration
Corn distillers' dried grains, cottonseed meal, brewers' dried grains, corn gluten feed, old process linseed oil meal, corn meal, hominy meal, soybean oil meal, ground oats, wheat bran, cane molasses, steamed bone meal 0.5%, 1.0% ground limestone, 1.0% salt, 0.03% iron oxide, 0.0005% potassium iodide.

Wayne Poultry Fattener
Ground yellow corn, corn germ oil meal, white hominy feed, rolled oats, fine ground oats, wheat standard middlings, wheat red dog, old process linseed oil meal and 1% salt.

Wayne Turkey Starting Mash
Dried buttermilk, dried skim milk, animal liver meal, meat scraps, fish meal, wheat standard middlings, corn gluten meal, corn meal, dehydrated alfalfa meal, soybean oil meal, wheat bran, fine ground oats, 2% ground limestone, 0.06% iron oxide, 0.0007% potassium iodide, 0.06% manganese sulphate, 0.25% salt and sardine oil.

A. P. Ames Co.

Ames Complete Cycle Ration
Corn meal, wheat middlings, wheat bran, pulverized whole oats, meat scraps, cod fish meal, dried milk, alfalfa leaf meal, calcium carbonate, salt, Exadol.

Ames Complete Starter and Broiler Ration
Corn meal, wheat middlings, dried skim milk, pulverized whole oats, wheat bran, alfalfa leaf meal, cod fish meal, meat scraps, calcium carbonate, salt, Clo-Trate concentrated cod liver oil.

Ames Egg Mash
Corn meal, wheat middlings, pulverized whole oats, wheat bran, cod fish meal, meat scraps, alfalfa leaf meal, dried skim milk, calcium carbonate, salt, and Exadol.

Ames 20% Milk Maker
Gluten, corn meal (and, or hominy), wheat bran, wheat middlings, linseed meal (and, or soy bean oil meal, and, or cotton seed meal), oat feed, calcium carbonate, and salt.

Arcady Farms Milling Co.

Arcady 24% Open Formula Production Ration
Wheat bran, hominy feed, o. p. linseed oil meal, ground oats, cottonseed meal, corn gluten meal, corn gluten feed, distillers corn dried grains, soy bean oil meal, molasses, 1% bone meal, 1% calcium carbonate from limestone, 1% salt.

Arcady 20% Open Formula Production Ration
Wheat bran, hominy feed, o. p. linseed oil meal, ground white oats, corn gluten feed, cottonseed meal, corn gluten meal, distillers corn dried grains, molasses, 1% bone meal, 1% calcium carbonate from limestone, 1% salt.

Arcady Sweet 16 Dairy Feed
Wheat bran, soy bean oil meal, corn gluten meal, o. p. linseed oil meal, distillers corn dried grains, brewers dried grains, corn gluten feed, cleaned ground and bolted wheat screenings, ground and bolted oat mill feed (oat hulls, oat shorts, oat middlings), cottonseed meal, molasses, 1% calcium carbonate from limestone, ½ of 1% salt.

Arcady Wonder Growing Mash
Wonderlas (molasses, peanut oil meal, soy bean oil meal, o. p. linseed oil meal, corn oil cake meal), animal liver meal, fish meal, meat scraps, dried buttermilk, corn gluten feed, corn meal, wheat bran, wheat middlings, dehydrated alfalfa meal, fortified cod liver oil, ground oats, bone meal, 1% calcium carbonate from limestone, ½ of 1% salt, 1½ oz. potassium iodide per ton.

Arcady Wonder Laying Mash
Wonderlas (molasses, peanut oil meal, soy bean oil meal, o. p. linseed oil meal, corn oil cake meal), animal liver meal, fish meal, meat scraps, dried buttermilk, oat meal, corn meal, corn gluten feed, dehydrated alfalfa meal, fine ground oats, wheat bran, wheat middlings, fortified cod liver oil, bone meal, 1% calcium carbonate from limestone, ½ of 1% salt, 1½ oz. potassium iodide per ton.

Arcady Wonderlas
Molasses, peanut oil meal, cottonseed meal, o. p. linseed oil meal, soy bean oil meal, 2% calcium carbonate from limestone, 2% salt.

Milkers Ready Ration
Corn gluten meal, corn gluten feed, soy bean oil meal, brewers dried grains, wheat bran, o. p. linseed oil meal, cleaned ground and bolted wheat screenings, cottonseed meal, malt sprouts, molasses, 1% calcium carbonate from limestone, ½ of 1% salt.

Peerless Milk Ration
Cottonseed meal, soy bean oil meal, corn gluten meal, o. p. linseed oil meal, corn gluten feed, wheat bran, brewers dried grains, cleaned ground & bolted wheat screenings, ground & bolted oat mill feed (oat hulls, oat shorts, oat middlings) malt sprouts, molasses, 1% calcium carbonate from limestone, ½ of 1% salt.

Sunkist Egg Mash
Wonderlas (molasses, peanut oil meal, soy bean oil meal, o. p. linseed oil meal, corn oil cake meal), dried buttermilk, meat scraps, gluten feed, ground yellow corn, wheat bran, fine ground oats, wheat middlings, alfalfa meal, fortified cod liver oil, 1% calcium carbonate from limestone, 1% salt.

Beacon Milling Co., Inc.

Auburn Dairy Feed
Corn gluten feed, old process linseed oil meal, soy bean oil meal, ground oats, corn meal, ground grain screenings, cottonseed meal, wheat bran, ground barley, corn distiller's dried grains, molasses, 1% salt, 1% calcium carbonate.

Beacon Sweet "24"
Old process linseed oil meal, soy bean oil meal, corn gluten meal, cottonseed meal, corn gluten feed, corn meal, corn distiller's dried grains, wheat bran, wheat middlings, ground oats, ground barley, molasses, 1% salt, 2% calcium carbonate.

Beacon "20"
Old process linseed oil meal, cottonseed meal, soy bean oil meal, corn gluten feed, corn gluten meal, corn meal, wheat bran, wheat middlings, corn distiller's dried grains, ground oats, ground barley, 1% salt, 1% calcium carbonate.

Beacon Sweet "20"
Old process linseed oil meal, soy bean oil meal, corn distiller's dried grains, cottonseed meal, wheat bran, wheat middlings, corn gluten meal, corn gluten feed, ground barley, corn meal, ground oats, molasses, 1% calcium carbonate, 1% salt.

Beacon Battery Growing Ration
Dried skimmilk, dried buttermilk, liver meal, fish meal, meat scrap, dehydrated alfalfa leaf meal, pulverized heavy oats, pulverized heavy barley, wheat bran, wheat flour middlings, corn meal, fine charcoal, ½% fine salt, fortified cod liver oil, 2% calcium carbonate, anhydrous manganese sulphate 45 p.p.m.

Beacon Battery Laying Ration
Dried skimmilk, dried buttermilk, liver meal, fish meal, meat scrap, dehydrated alfalfa leaf meal, pulverized heavy oats, pulverized heavy barley, wheat bran, wheat flour middlings, corn meal, fine charcoal, ½% fine salt, fortified cod liver oil, 2% calcium carbonate, anhydrous manganese sulphate 45 p.p.m.

Beacon Breeders Mash
Dried skimmilk, dried buttermilk, liver meal, meat scrap, fish meal, dehydrated alfalfa leaf meal, corn meal, pulverized heavy oats, pulverized heavy barley, wheat bran, wheat flour middlings, fortified cod liver oil, ½% fine salt, 3% calcium carbonate, 1% Protozyme (an enzyme supplying product derived from biochemically processed cereals), anhydrous manganese sulphate 70 p.p.m.

Beacon Broiler Feed
Dried skimmilk, liver meal, meat scrap, fish meal, ground yellow corn, pulverized heavy oats, pulverized heavy barley, wheat bran, wheat red dog, dehydrated alfalfa leaf meal, fortified cod liver oil, 2% calcium carbonate, ½% salt, anhydrous manganese sulphate 35 p.p.m.

Beacon C-C Pellets Manufactured by United States Patent 2056107
Dried skimmilk, ground yellow corn, liquid petrolatum, sulphur sublimatum, pulverized heavy barley, wheat bran, fortified cod liver oil, ½% salt.

Beacon Complete Starting Ration
Dried skimmilk, liver meal, meat scrap, fish meal, ground yellow corn, ground hulled oats, pulverized heavy oats, pulverized heavy barley, wheat bran, wheat flour middlings, dehydrated alfalfa leaf meal, fortified cod liver oil, 2% calcium carbonate, ½% salt, anhydrous manganese sulphate 35 p.p.m.

Beacon Dairy Ration
Old process linseed oil meal, soy bean oil meal, corn gluten feed, corn distiller's dried grains, ground barley, corn gluten meal, hominy feed, corn meal, cottonseed meal, ground oats, wheat bran, wheat middlings, 2% calcium carbonate, 1% salt.

Beacon Duck Breeder Pellets
Dried skimmilk, liver meal, meat scrap, fish meal, corn meal, pulverized heavy barley, wheat bran, wheat red dog, ground oat groats, dehydrated alfalfa leaf meal, fortified cod liver oil, 2% calcium carbonate, ¼% salt, anhydrous manganese sulphate 70 p.p.m.

Beacon Duck Growing Pellets
Meat scrap, fish meal, corn meal, pulverized heavy barley, pulverized heavy oats, wheat bran, wheat red dog, dehydrated alfalfa leaf meal, old process linseed oil meal, soy bean oil meal, fortified cod liver oil, 2% calcium carbonate, ¼% salt, anhydrous manganese sulphate 70 p.p.m.

Beacon Duck Laying Pellets
Dried skimmilk, liver meal, meat scrap, fish meal, corn meal, pulverized heavy barley, pulverized heavy oats, wheat bran, wheat red dog, dehydrated alfalfa leaf meal, old process linseed oil meal, soy bean oil meal, fortified cod liver oil, 2% calcium carbonate, ¼% salt, anhydrous manganese sulphate 70 p.p.m.

Beacon "22" Egg Mash
Dried buttermilk, dried skimmilk, liver meal, meat scrap, fish meal, pulverized heavy barley, pulverized heavy oats, corn meal, dehydrated alfalfa leaf meal, wheat bran, wheat flour middlings, fortified cod liver oil, 3% calcium carbonate, ½% fine salt, 1% Protozyme (an enzyme supplying product derived from biochemically processed cereals), anhydrous manganese sulphate 70 p.p.m.

Beacon Fleshing Pellets
Dried skimmilk, liver meal, pulverized heavy oats, pulverized heavy barley, wheat low grade flour, corn meal, corn oil meal, wheat germ meal, fortified cod liver oil, 2½% calcium carbonate, 1% salt, anhydrous manganese sulphate 70 p.p.m.

Beacon "18" Growing Mash
Dried skimmilk, liver meal, meat scrap, fish meal, pulverized heavy oats, pulverized heavy barley, corn meal, wheat red dog, dehydrated alfalfa leaf meal, wheat bran, wheat flour middlings, fortified cod liver oil, 2% calcium carbonate, ½% salt, anhydrous manganese sulphate 70 p.p.m.

Beacon "20" Laying Mash
Dried buttermilk, dried skimmilk, liver meal, fish meal, meat scrap, corn meal, dehydrated alfalfa leaf meal, wheat bran, wheat flour middlings, pulverized heavy barley, pulverized heavy oats, fortified cod liver oil, 3% calcium carbonate, ½% salt, anhydrous manganese sulphate 70 p.p.m.

Beacon Test Cow Ration
Old process linseed oil meal, cottonseed meal, corn distiller's dried grains, soy bean oil meal, corn gluten feed, corn meal, wheat bran, crushed oats, crushed barley, molasses, 1% salt, 1% calcium carbonate.

Berkshire Coal & Grain Co., Inc.

Berkshire Hills Sweet Dairy
Wheat bran, cottonseed meal, gluten feed, linseed oil meal, corn meal, ground oats, brewers grain, cane molasses, calcium carbonate and salt.

Green Mountain Dairy Ration
Wheat bran, cottonseed meal, corn gluten feed, linseed oil meal, corn meal, ground oats and barley, calcium carbonate and salt.

Green Mountain Laying Mash
Wheat bran, wheat middlings, linseed oil meal, corn meal, fine ground oats, alfalfa meal, meat scraps, bone meal, fish meal, dried skim milk, calcium carbonate, salt, Nopco XX concentrated cod liver oil.

Greylock 20% Molasses Ration
Cottonseed meal, brewers grains, oat feed, wheat bran, rye feed, hominy, soy bean meal, cane molasses, calcium carbonate, salt, gluten meal.

Borden Grain Co.

Borden's Dairy Feed
Wheat bran, wheat middlings, corn meal or (hominy), gluten meal, gluten feed, cottonseed meal, soy bean oil meal, linseed oil meal, calcium carbonate, iodine, bone meal, salt.

Borden's Laying Mash
Corn meal, wheat bran, wheat middlings, ground oat meal, dried milk, dried whey, Lactoflavin concentrate, alfalfa leaf meal, fish meal, meat scrap, soy bean oil meal, cod liver oil, calcium carbonate, manganese, iodine, salt.

Borden's Starter and Growing Feed
Corn meal, wheat bran, wheat middlings, ground oat meal, alfalfa leaf meal, soy bean oil meal, meat scrap, fish meal, gluten meal, dried milk, dried whey, Lactoflavin concentrate, cod liver oil, calcium carbonate, manganese, iodine, bone meal, salt.

George B. Brown Corp.

Brown's Dairy Feed
Wheat bran, hominy feed, oat feed, cotton seed meal, calcium carbonate, distillers' grain corn meal, o. p. linseed meal, corn gluten feed, molasses, bone meal, salt.

Brown's Egg Mash
Corn meal, wheat midds., ground oats, wheat bran, meat scraps, bone meal, dried milk, leaf alfalfa meal, charcoal, calcium carbonate, salt, and Nopco XX concentrated cod liver oil.

Checkerboard Feed Store

Protena Laying Mash
Meat scrap, soy bean oil meal, linseed meal, corn meal, dried buttermilk, cod liver oil, sardine oil, alfalfa meal, wheat middlings (standard), wheat bran, 4% calcium carbonate (limestone), 1% salt.

Coles Feed & Grain Co.

Fortune Producer Mash
Corn meal, wheat bran, flour midds, ground oats, dried milk, alfalfa leaf meal, beef scraps, fish meal, salt, shell meal, dicalcium phosphate, Clotrate cod liver oil fortified in vitamins A and D.

Community Feed Stores, Inc.

Community 20 Dairy Ration
Corn distillers dried grains, 41% cotton seed meal, soya bean meal, corn gluten feed, yellow corn meal or hominy, pure ground oats, pure wheat bran, molasses, salt, calcium carbonate.

Community Growing Mash
Greenmelk (tender succulent grasses and condensed buttermilk), yellow corn meal, white hominy, ground oats, pure bran, wheat middlings, alfalfa meal, soybean meal, dried skim milk, meat scraps 50%, pure fish meal, salt, oyster shell meal, cod liver oil.

Community Laying Mash
Greenmelk (tender succulent grasses and condensed buttermilk), yellow corn meal, white hominy, ground oats, pure wheat bran, gluten feed, wheat middlings, choice meat scraps 50%, pure fish meal, soybean meal, dried skim milk, alfalfa meal, salt, cod liver oil, oyster shell meal.

Hilltop 20 Dairy Ration
41% cotton seed meal, soya bean meal, corn gluten feed, hominy or yellow corn meal, Vim oat mill feed, pure wheat bran, corn distillers dried grains, cane molasses, calcium carbonate, salt.

Cover & Palm Co.

C. & P. Growing Mash
Dried milk, meat scraps, fish meal, pulverized oats, corn meal, wheat bran, wheat middlings, alfalfa leaf meal, soy bean meal, Vitadene, hominy feed, salt, bone meal, potassium iodide, calcium carbonate, cod liver oil.

C. & P. Grade A Laying Mash
Dried milk, meat scraps, fish meal, corn meal, wheat bran, wheat middlings, pulverized oats, soy bean meal, alfalfa leaf meal, linseed meal, Vitadene, salt, calcium carbonate, potassium iodide, cod liver oil.

C. & P. Starter & Broiler Ration
Dried milk, meat scraps, fish meal, ground hulled oats, soy bean meal, corn meal, wheat bran, wheat red dog flour, wheat middlings, pulverized oats, Vitadene, alfalfa leaf meal, salt, bone meal, potassium iodide, calcium carbonate, cod liver oil.

Chas. M. Cox Co.

Utility Growing Ration
Dried skim milk, ground oats, alfalfa meal, wheat bran, gluten feed, ground barley, fish meal, cod liver oil, wheat middlings, calcium carbonate, meat scrap, yellow corn meal, soy bean meal, gluten meal, salt.

Utility Laying Ration
Dried skim milk, meat scrap, fish meal, alfalfa meal, gluten meal, ground barley, ground wheat, yellow corn meal, wheat bran, wheat middlings, gluten feed, cod liver oil, ground oats, calcium carbonate, salt.

Utility Starting Ration
Dried skim milk, cod liver oil, soy bean meal, wheat middlings, ground oats, ground barley, fish meal, wheat bran, ground wheat, calcium carbonate, meat scrap, yellow corn meal, gluten meal, alfalfa meal, salt.

Delaware Mills, Inc.

Delaware Sweet 20% Dairy Feed
Cane molasses, linseed oil meal, corn gluten feed, corn gluten meal, cottonseed meal, soybean oil meal, corn distillers grains, peanut oil meal, wheat bran, wheat middlings, hominy feed, ground oats, ground barley, phosphatic calcium carbonate and salt.

Delaware Laying Mash
Cod liver oil, dried skim milk, meat scrap, bone meal, fish meal, soybean oil meal, corn gluten feed, corn meal, wheat bran, wheat middlings, wheat red dog, oatmeal, pulverized heavy oats, ground barley, dehydrated alfalfa leaf meal, phosphatic calcium carbonate, ½ of 1% salt.

Delco 20% Dairy Feed
Dried beet pulp, linseed oil meal, corn gluten feed, corn gluten meal, soybean oil meal, peanut oil meal, cottonseed meal, wheat bran, wheat middlings, hominy feed, ground oats, salt and phosphatic calcium carbonate.

Indian Sweet 20% Dairy Feed
Cane molasses, linseed oil meal, corn gluten feed, cottonseed meal, soybean oil meal, peanut oil meal, wheat bran, wheat middlings, corn meal, reground oatfeed, corn distillers grains, phosphatic calcium carbonate and salt.

Indian Growing Mash
Dried skim milk, meat scrap, fish meal, bone meal, soybean oil meal, alfalfa meal, wheat bran, wheat middlings, corn meal, ground barley, ground oats, phosphatic calcium carbonate and salt.

Indian Laying Mash
Dried skim milk, meat scrap, fish meal, bone meal, soybean oil meal, corn gluten feed, alfalfa meal, wheat bran, wheat middlings, corn meal, ground barley, ground oats, phosphatic calcium carbonate and salt.

Frank Diauto

Diauto's Dairy Feed
Gluten feed, corn meal, ground oats, bran, linseed meal, cotton seed meal, salt.

Diauto's Fancy Chick Growing Mash
Bran, middlings, pulv. ground oats, feeding oat meal, 50% scraps, dried milk, soy bean meal, oyster shell meal, alfalfa meal, fish meal, salt, cod liver oil, corn meal.

Diauto's Special Egg Mash
Linseed meal, cod liver oil, meal, middlings, ground oats, feeding oat meal, oyster shell meal, 50% scraps, fish meal, milk, soy bean meal, ground barley, alfalfa meal, salt, bran.

F. Diehl & Son, Inc.

Diehl's Dairy Feed
Bran, brewers grains, cottonseed meal, gluten, linseed meal, corn meal, oat meal mill by-products, ground barley, pure ground oats, wheat middlings, salt, calcium carbonate, and bone meal,—sweetened.

Diehl's Dry Mash
Alfalfa, bone, bran, calcite flour, charcoal, cod liver oil, cottonseed, dried milk, fish meal, gluten meal, ground oats, linseed, meal, meat scraps, middlings, red dog and salt.

Dietrich & Gambrill, Inc.

All Purpose Complete Ration
Coarse ground yellow corn, coarse ground wheat, pulverized oats, flour middlings, wheat bran, alfalfa leaf meal, dried buttermilk, meat scrap, fish meal, soy bean meal, steamed bone meal, 1% calcium carbonate, 1% salt.

Conditioning Ration
Cracked wheat, fine chick corn, corn meal, red dog, pulverized oats, wheat bran, alfalfa leaf meal, dried buttermilk, fish meal, meat scrap, soy bean meal, grit, bone meal, calcium carbonate, salt, mineral oil, peanut oil, cod liver oil, potassium iodide.

D & G Breeder Mash
Wheat bran, wheat middlings, yellow corn meal, pulverized oats, alfalfa leaf meal, fish meal, meat scraps, dried buttermilk, cod liver oil, soy bean meal, malt flour, bone meal, 1% calcium carbonate, 1% salt, potassium iodide.

D & G Broiler Mash
Ground wheat, pulverized oats, wheat bran, wheat flour middlings, alfalfa leaf meal, yellow corn meal, fish meal, meat scraps, soy bean meal, gluten meal, dried buttermilk, bone meal, calcium carbonate, salt, potassium iodide, cod liver oil.

D & G Dairy Feed
Cottonseed meal, peanut meal, linseed meal, gluten feed, corn feed meal, wheat bran, ground grain screenings, clipped oat by-products, oat middlings, oat shorts, oat hulls, molasses, 1% bone meal, 1% calcium carbonate, 1% salt, potassium iodide.

Frederick Growing Mash
Wheat middlings, wheat bran, pulverized oats, corn feed meal, gluten feed, ground barley, soy bean meal, meat scrap, dried buttermilk, alfalfa leaf meal, bone meal, 1% calcium carbonate, 1% salt, potassium iodide.

Frederick Laying Mash
Wheat bran, wheat middlings, corn feed meal, pulverized oats, ground barley, gluten meal, meat scrap, fish meal, alfalfa meal, soy bean meal, bone meal, 1% calcium carbonate, 1% salt, dried buttermilk, potassium iodide.

Gambrills Chick Starter
Oat meal, corn meal, malt flour, alfalfa leaf meal, wheat flour middlings, soy bean meal, fish meal, meat scrap, dried buttermilk, cod liver oil, bone meal, 1% calcium carbonate, 1% salt, potassium iodide.

Gambrills Growing Mash
Wheat bran, wheat middlings, corn feed meal, soy bean meal, malt flour, oat meal, gluten meal, meat scrap, fish meal, dried buttermilk, cod liver oil, alfalfa leaf meal, bone meal, 1% calcium carbonate, 1% salt, potassium iodide.

J. L. Dunnell & Son

Dunnell's Sweetened Dairy Ration
Corn meal, gluten feed, Vim oat feed, bran, soy bean oil meal, cottonseed meal, molasses, salt, bone meal, calcium carbonate.

East Bridgewater Farmers' Exchange, Inc.

Exchange Dairy Feed
Old process linseed meal, cottonseed meal, corn gluten meal, corn gluten feed, corn distillers dried grains, yellow corn meal or hominy feed, ground oats, dried beet pulp, soybean oil meal, wheat bran, wheat standard middlings, brewers' dried grains, steamed bone meal, cane molasses, salt.

Exchange Growing Feed
Fortified cod liver oil, dried skimmed milk, meat scraps, fish meal, alfalfa leaf meal, yellow corn meal, wheat bran, wheat standard middlings, ground oats, calcium carbonate, salt.

Exchange Mash Feed
Fortified cod liver oil, dried skimmed milk, meat scraps, fish meal, alfalfa leaf meal, yellow corn meal, wheat bran, wheat standard middlings, ground oats, calcium carbonate, salt.

Eastern Grain Co.

Eastern 24% Dairy Ration Sweetened
Old process linseed meal, soybean oil meal, cottonseed meal, corn gluten meal, corn gluten feed, corn distillers' dried grains, brewers' dried grains, yellow corn meal, ground oats, ground barley, wheat bran, wheat standard middlings, cane molasses, calcium carbonate, salt.

Eastern 20% Dairy Ration Sweetened
Old process linseed meal, soybean oil meal, cottonseed meal, corn gluten meal, corn gluten feed, corn distillers' dried grains, brewers' dried grains, yellow corn meal, ground oats, ground barley, wheat bran, wheat standard middlings, cane molasses, calcium carbonate, salt.

Eastern Poultry Flush
Fortified cod liver oil, dried whey, liver meal, meat scraps, fish meal, alfalfa leaf meal, yellow corn meal, wheat bran, wheat standard middlings, wheat low-grade feed flour, ground oats, soybean oil meal, calcium carbonate.

Eastern States Farmers' Exchange

Eastern States All-Mash Developer
E. S. yellow corn meal, wheat bran, wheat flour middlings, E. S. ground oats, E. S. ground barley, alfalfa leaf meal, 41 per cent protein soybean oil meal, dried skimmed milk, 50 per cent protein meat scraps, 58 per cent protein fish meal, oyster shell meal, iodized salt, dicalcium phosphate, fortified sardine oil with 2 per cent wheat germ oil, manganese sulphate.

Eastern States All-Mash Egg
E. S. yellow corn meal, wheat flour middlings, wheat bran, E. S. ground oats, E. S. ground barley, 50 per cent protein meat scraps, 58 per cent protein fish meal, alfalfa leaf meal, 41 per cent protein soybean oil meal, oyster shell meal, corn gluten meal, iodized salt, fortified sardine oil.

Eastern States Combination
E. S. yellow corn meal, wheat bran, wheat flour middlings, E. S. ground oats, 50 per cent protein meat scraps, alfalfa leaf meal, 58 per cent protein fish meal, 41 per cent protein soybean oil meal, oyster shell meal, dried skimmed milk, dried whey, dicalcium phosphate, iodized salt, fortified sardine oil with 1 per cent wheat germ oil, manganese sulphate.

Eastern States Developer
E. S. yellow corn meal, wheat bran, wheat flour middlings, E. S. ground barley, E. S. ground oats, 41 per cent protein soybean oil meal, alfalfa leaf meal, 58 per cent protein fish meal, 50 per cent protein meat scraps, dried skimmed milk, dried whey, oyster shell meal, iodized salt, dicalcium phosphate, fortified sardine oil with 1 per cent wheat germ oil, manganese sulphate.

Eastern States Egg Mash
E. S. yellow corn meal, wheat bran, wheat standard middlings, E. S. ground oats, E. S. ground barley, 58 per cent protein fish meal, 50 per cent protein meat scraps, 41 per cent protein soybean oil meal, alfalfa leal meal, corn gluten meal, oyster shell meal, iodized salt, fortified sardine oil.

Eastern States Fattener
E. S. yellow corn meal, corn oil meal, ground oat groats, dried skimmed milk, wheat standard middlings, wheat red dog, E. S. ground oats, 41 per cent protein soybean oil meal, iodized salt.

Eastern States Flushing
Wheat bran, E. S. yellow corn meal, dried whey, dried skimmed milk, 50 per cent protein meat scraps, 58 per cent protein fish meal, ground oat groats, alfalfa leaf meal, oyster shell meal, iodized salt, fortified sardine oil.

Eastern States Fulpail
E. S. ground oats, E. S. yellow corn feed meal, wheat bran, 41 per cent protein cottonseed meal prime quality, distillers' corn dried grains, cane molasses, 41 per cent protein soybean oil meal, corn gluten feed, 32 per cent protein old process linseed meal, wheat germ oil meal, dicalcium phosphate, iodized salt.

Eastern States Highland 20
41 per cent protein cottonseed meal prime quality, oat mill feed (oat hulls, oat shorts and oat middlings), hominy feed, wheat bran, corn gluten feed, 41 per cent protein soybean oil meal, cane molasses, distillers' corn dried grains, E. S. ground barley, wheat germ oil meal, calcium carbonate, iodized salt.

Eastern States Highland 16
Hominy feed, oat mill feed (oat hulls, oat shorts and oat middlings), wheat bran, distillers' corn dried grains, cane molasses, 41 per cent protein cottonseed meal prime quality, corn gluten feed, 41 per cent protein soybean oil meal, E. S. ground barley, wheat germ oil meal, calcium carbonate, iodized salt.

Eastern States Milkmore
41 per cent protein cottonseed meal prime quality, 41 per cent protein soybean oil meal, wheat bran, E. S. ground oats, corn gluten feed, distillers' corn dried grains, cane molasses, E. S. yellow corn feed meal, 32 per cent protein old process linseed meal, wheat germ oil meal, dicalcium phosphate, iodized salt.

Eastern States Producer 20
E. S. yellow corn meal, wheat bran, E. S. ground oats, wheat flour middlings, 50 per cent protein meat scraps, alfalfa leaf meal, 58 per cent protein fish meal, dried skimmed milk, 41 per cent protein soybean oil meal, oyster shell meal, dried whey, iodized salt, dicalcium phosphate, fortified sardine oil with 1 per cent wheat germ oil, manganese sulphate.

Eastern States Producer 17
E. S. yellow corn meal, wheat flour middlings, wheat bran, E. S. ground oats, 50 per cent protein meat scraps, 58 per cent protein fish meal, alfalfa leaf meal, oyster shell meal, 41 per cent protein soybean oil meal, dried skimmed milk, dried whey, dicalcium phosphate, iodized salt, fortified sardine oil with 1 per cent wheat germ oil, manganese sulphate.

Eastern States Starting and Broiler
E. S. yellow corn meal, wheat flour middlings, wheat bran, ground oat groats, dried skimmed milk, alfalfa leaf meal, 50 per cent protein meat scraps, 58 per cent protein fish meal, oyster shell meal, iodized salt, dicalcium phosphate, fortified sardine oil with 2 per cent wheat germ oil, manganese sulphate.

Eastern States 32% Supplement Feed
41 per cent protein cottonseed meal prime quality, 41 per cent protein soybean oil meal, distillers' corn dried grains, corn gluten meal, 32 per cent protein old process linseed meal, cane molasses, wheat bran, dicalcium phosphate, iodized salt.

Eastern States Turkey-Fat
E. S. yellow corn meal, wheat bran, wheat flour middlings, 50 per cent protein meat scraps, E. S. ground oats, 41 per cent protein soybean oil meal, alfalfa leaf meal, corn gluten meal, dried skimmed milk, ground oat groats, oyster shell meal, iodized salt.

Eastern States Turkey-Grow
E. S. yellow corn meal, wheat bran, wheat flour middlings, 41 per cent protein soybean oil meal, 58 per cent protein fish meal, ground oat groats, alfalfa leaf meal, dried skimmed milk, corn gluten meal, E. S. ground oats, 50 per cent protein meat scraps, oyster shell meal, dicalcium phosphate, iodized salt, fortified sardine oil, manganese sulphate.

Eastern States Turkey-Start
E. S. yellow corn meal, wheat flour middlings, wheat bran, 41 per cent protein soybean oil meal, 58 per cent protein fish meal, ground oat groats, corn gluten meal, alfalfa leaf meal, 50 per cent protein meat scraps, dried skimmed milk, oyster shell meal, dicalcium phosphate, iodized salt, fortified sardine oil, manganese sulphate.

Michael W. Ellis

The Ellis Dairy Feed
Corn meal, wheat middlings, wheat bran, gluten meal, hominy feed, gluten feed, corn distillers grains, cottonseed meal, oil meal, ground oats, calcite flour, salt and edible bone meal.

The Ellis Poultry Mash
Wheat bran, wheat middlings, hominy feed, gluten, corn meal, rolled oats or feeding oatmeal, alfalfa leaf meal, cod liver oil, beef scraps, dried skim milk or buttermilk, edible bone meal, salt, charcoal and calcite flour.

The Ellis Special Dairy Feed
Hominy feed, wheat middlings, wheat bran, gluten meal, gluten feed, cotton seed meal, sugared Vim feed, alfalfa meal, calcite flour, salt.

Elmore Milling Co., Inc.

Elmore Breeders Mash
Wheat germ meal, yellow corn meal, wheat bran, wheat middlings, ground heavy oats, alfalfa leaf meal, meat and bone meal, fish meal, dried skim milk, cod liver oil, cod liver meal, oyster shell flour, salt.

Elmore Complete Laying Ration
Alfalfa leaf meal, wheat bran (may contain mill run screenings), cod liver oil, corn meal, fish meal, wheat middlings, dried skim milk, pulverized heavy oats, meat scraps, oyster shell flour, cod liver meal, ground barley, soybean oil meal, gluten meal, salt.

Elmore Egg Mash
Dried skim milk, meat meal, second clear wheat flour, pure ground oats, wheat middlings, corn meal (No. 2 yel.), wheat bran, alfalfa leaf meal, fish meal, bone meal, cod liver oil, oyster shell flour, salt.

Elmore Fleshing Pellets
Corn meal, corn oil meal, pulverized heavy oats, standard midds, low grade wheat flour, corn gluten meal, soybean oil meal, dried skim milk, cod liver oil, salt.

Elmore Growing Mash
Dried buttermilk, meat meal, bone meal, wheat midds, wheat bran, low grade wheat flour, alfalfa leaf meal, corn meal, oat meal, gluten meal, fish meal, cod liver oil, oyster shell flour, ground barley, soybean oil meal, salt.

Elmore M. A. C. Laying Mash
Alfalfa leaf meal, corn meal, fish meal, wheat midds, dried skim milk, wheat bran (may contain mill run screenings), ground heavy oats, meat scraps, oyster shell flour, cod liver oil, salt.

Elmore Milk Grains "Twenty-Four"
Corn distillers grains, wheat bran, old process oil meal, corn meal or hominy feed, barley malt sprouts, corn gluten feed, cotton seed meal, dried brewers' grains, soybean oil meal, calcium carbonate and salt.

Elmore 32% Supplemental Dairy Ration
Corn gluten feed, corn gluten meal, choice cotton seed meal, linseed oil meal, wheat bran, soybean oil meal, cane molasses, calcium carbonate, salt.

Elmore's Sweet Digesto Dairy Feed
Corn gluten feed, cotton seed meal, wheat bran, cocoanut oil meal, pulverized wheat screenings, oat meal mill by-products (oat hulls, oat midds and oat shorts), cane molasses, salt.

Elmore Turkey Growing Mash
Yellow corn meal, wheat bran, wheat middlings, ground heavy oats, ground barley, alfalfa leaf meal, soybean oil meal, corn gluten meal, dried skim milk, meat scraps, fish meal, oyster shell flour, cod liver oil, salt.

Elmore Turkey Starting Mash
Yellow corn meal, wheat bran, wheat middlings, pulverized heavy oats, wheat germ meal, alfalfa leaf meal, soybean oil meal, corn gluten meal, dried skim milk, meat scraps, fish meal, oyster shell flour, cod liver oil, salt.

Granger 20% Dairy Ration
Wheat bran, wheat midds, cotton seed meal, corn gluten feed, corn meal or hominy feed, soybean oil meal, cane molasses, ground oats, dried brewers' grains, copra oil meal, calcium carbonate, salt.

Waldorf 20% Dairy Ration
Wheat bran, cocoanut oil meal, corn gluten feed, corn gluten meal, dried brewers' grains' cotton seed meal, cane molasses, ground oats, pulverized grain screenings, calcium carbonate' salt.

John W. Eshelman & Sons

Eshelman Challenge Dairy Feed
Cottonseed meal, wheat bran, corn gluten feed, cane molasses, corn gluten meal, ground oats, dried brewers' grains, corn distillers' grains, corn meal, o. p. oil meal, soybean oil meal, reground grain screenings from wheat, 1% bone meal, 1% calcium carbonate, 1% salt.

Eshelman Conestoga 20 Dairy Feed
Cottonseed meal, wheat bran, cane molasses, corn gluten feed, dried brewers' grains, corn distillers' grains, soybean oil meal, o. p. oil meal, reground grain screenings from wheat, 1% bone meal, 1% calcium carbonate, 1% salt.

Eshelman Pennsy 16 Dairy Feed
Wheat bran, cottonseed meal, cane molasses, corn gluten feed, dried brewers' grains, o. p. oil meal, soybean oil meal, reground grain screenings from wheat, oat mill feed (oat midds, oat hulls, oat shorts), 1% bone meal, 1% salt, 1% calcium carbonate.

Eshelman Pennsy Laying Mash
Corn meal, wheat middlings, meat scrap, wheat bran, ground oats, alfalfa meal, soybean oil meal, cane molasses, fish meal, corn gluten feed, o. p. oil meal, 1% bone meal, 1% calcium carbonate, ½% salt.

Red Rose Complete Laying Mash
Corn meal, ground wheat, ground barley, wheat middlings, wheat bran, ground oats, meat scrap, soybean oil meal, fine alfalfa meal, corn gluten feed, o. p. oil meal, fish meal, dried buttermilk, dried whey, 1% calcium carbonate, ½% salt, fortified cod liver oil.

Eshelman Red Rose 24 Dairy Feed
Cottonseed meal, wheat bran, corn gluten feed, cane molasses, corn gluten meal, ground oats, dried brewers grains, corn distillers' grains, corn meal, o. p. oil meal, soybean oil meal, 1% bone meal, 1% calcium carbonate, 1% salt.

Eshelman Red Rose 20 Dairy Feed
Wheat bran, cottonseed meal, ground oats, corn gluten feed, cane molasses, dried brewers' grains, corn distillers' grains, corn meal, o. p. oil meal, soybean oil meal, 1% bone meal, 1% calcium carbonate, 1% salt.

Eshelman Red Rose Laying Mash
Wheat middlings, corn meal, meat scrap, wheat bran, corn gluten feed, ground oats, o. p. oil meal, fish meal, soybean oil meal, hominy feed, fine alfalfa meal, dried buttermilk, dried whey, 1% calcium carbonate, ½% salt, fortified cod liver oil.

Farm Service Co.

"C" Complete Starter & Broiler Ration
Corn meal, pulverized oats, ground barley, fish meal, calcium carbonate, soya bean oil meal, alfalfa meal, wheat bran (with wheat screenings not exceeding mill run), wheat midds (with wheat screenings not exceeding mill run), dried milk, meat scraps, salt, cod liver oil.

C Growing Mash
Corn meal, mixed feed, ground oats, meat scraps, dried milk, fish scraps, alfalfa meal, calcium carbonate, salt, cod liver oil.

C Laying Mash
Corn meal, mixed feed, corn gluten feed, linseed oil meal, soya bean oil meal, meat scraps, alfalfa meal, ground oats, calcium carbonate, bone meal, fish meal, salt.

18% Dairy Ration
Corn meal, hominy, wheat bran (with wheat screenings not exceeding mill run), corn gluten feed, cottonseed meal, linseed oil meal, dried brewers' grains, soya bean oil meal, molasses, oat midds, calcium carbonate, ground wheat screenings, ground oats, salt.

Diamond C Dairy Feed
Wheat bran (with wheat screenings not exceeding mill run), wheat midds (with wheat screenings not exceeding mill run), corn meal, hominy, cottonseed meal, linseed oil meal, beet pulp, soya bean oil meal, corn gluten feed, corn gluten meal, salt.

Eventually Gold Medal Growing Mash
Wheat bran (with wheat screenings not exceeding mill run), wheat midds (with wheat screenings not exceeding mill run), yellow corn meal, ground oats, alfalfa meal, meat and bone scraps, dried skim milk, dried buttermilk, fish meal, ground limestone, salt, cod liver oil extract.

New England Dairy Ration
Corn gluten meal, corn gluten feed, wheat bran (with wheat screenings not exceeding mill run), yellow corn meal, linseed oil meal, soya bean oil meal, cottonseed meal, hominy, ground oats, molasses, calcium carbonate, salt.

North Star Chick Starter
Wheat bran (with wheat screenings not exceeding mill run), flour midds (with wheat screenings not exceeding mill run), corn meal, feeding oatmeal, meat scraps, fish meal, dried milk, alfalfa meal, soya bean oil meal, calcium carbonate, salt, cod liver oil.

North Star 16% Dairy Feed
Corn meal, hominy, soya bean oil meal, dried brewers grains, wheat bran (with wheat screenings not exceeding mill run), corn gluten feed, cottonseed meal, linseed oil meal, molasses, calcium carbonate, ground barley, ground wheat screenings, bone meal, salt.

North Star Laying Mash
Corn meal, pulverized oats, alfalfa meal, wheat bran (with wheat screenings not exceeding mill run), wheat midds (with wheat screenings not exceeding mill run), corn gluten feed, ground barley, soya bean oil meal, meat scraps, dried milk, calcium carbonate, fish meal, salt, (with or without cod liver oil).

Flory Milling Co., Inc.

Flory's "All-Mash" Chick Starter
Oatmeal, yellow corn meal, wheat bran, standard wheat middlings, choice fine alfalfa meal, dried tomato pulp, ground barley, dried skimmilk, dried whey, Lacto Flavin concentrate, fish meal, meat scrap, liver meal, soybean meal, linseed oil meal, ground wheat, pulverized oats, cod liver oil, essential minerals (calcium carbonate, calcium phosphate, anhydrous manganese sulphate, iodine and salt).

Flory's 20% Cream-O-Milk Dairy Feed
Corn gluten feed, corn gluten meal, dried brewers' grains, corn distillers' grains, malt sprouts, corn meal, soybean meal, ground oats, cottonseed meal, cane molasses, essential minerals (calcium carbonate, calcium phosphate, calcium sulphate, iron sulphate, sulphur, iodine and salt).

Flory's 24% Special Dairy Feed
Cottonseed meal, corn gluten feed, ground white oats, corn gluten meal, wheat bran (containing screenings not exceeding mill run), cocoanut oil meal, corn distillers' grains, dried brewers' grains, malt sprouts, molasses, soybean meal, alfalfa meal, corn meal, standard wheat middlings, essential minerals (calcium carbonate, calcium phosphate, calcium sulphate, iron sulphate, sulphur, iodine and salt).

Flory's 3 in 1 Starter-Growing-Laying Mash
Alfalfa meal, fish meal, oatmeal, pure corn meal, dried skimmilk, dried whey, Lacto Flavin concentrate, meat scrap, soybean meal, ground wheat, ground barley, wheat bran, standard wheat middlings, tomato pulp, cod liver oil, essential minerals (calcium carbonate, calcium phosphate, anhydrous manganese sulphate, iodine and salt).

Flory's 32% Protein Supplement Mash
Fish meal, soybean oil meal, meat scrap, liver meal, dried skimmilk, dried whey, Lacto Flavin concentrate, corn gluten meal, standard wheat middlings, wheat bran, cocoanut oil meal, alfalfa leaf meal, essential minerals (calcium carbonate, calcium phosphate, anhydrous manganese sulphate, iodine and salt), cod liver oil.

Golden Egg Growing Mash
Soybean oil meal, corn meal, ground oats, meat scrap, choice alfalfa meal, ground barley, fish meal, wheat bran, standard wheat middlings, tomato pulp, sugar cane molasses, dried skimmilk, dried whey, Lacto Flavin concentrate, essential minerals (calcium carbonate, calcium phosphate, anhydrous manganese sulphate, iodine and salt), cod liver oil.

Golden Egg Laying Mash
Dried skimmilk, dried whey, Lacto Flavin concentrate, meat scrap, fish meal, dried tomato pulp, soybean meal, yellow corn meal, wheat flour middlings, ground barley, wheat bran, ground white oats, choice alfalfa meal, corn gluten meal, cocoanut oil meal, cod liver oil, essential minerals (calcium carbonate, calcium phosphate, anhydrous manganese sulphate, iodine and salt).

Paul Fuller & Sons

Eggmaker
Dried skim milk, soy bean meal, alfalfa leaf meal, fine ground oats, feeding oat meal, st. wheat bran, fish meal, red dog flour, meat scraps, corn meal, gluten, salt, calcium carbonate.

J. B. Garland & Son, Inc.

Garland Complete Starting & Broiler Mash
Alfalfa leaf meal, fish meal, meat scraps, ground wheat, dried milk, cod liver oil, ground barley, ground oats, corn meal, wheat bran, wheat middlings, calcium carbonate and salt.

Garland 24% Dairy Ration
Soybean meal, brewers' dried grains, distillers' dried grains, cottonseed meal, linseed oil meal, corn gluten feed, wheat bran, middlings, malt sprouts, corn gluten meal, palm kernel meal, corn meal, fish meal, molasses, calcium carbonate and salt.

Garland 20% Dairy Ration
Soybean meal, brewers dried grains, linseed oil meal, cottonseed meal, corn gluten feed, distillers dried grains, malt sprouts, palm kernel meal, wheat bran, middlings, corn meal, fish meal, molasses, calcium carbonate and salt.

Garland Growing Mash
Alfalfa leaf meal, fish meal, meat scraps, linseed oil meal, dried milk, wheat bran, wheat middlings, soybean meal, ground oats, ground wheat, corn meal, calcium carbonate and salt. (With or without cod liver oil.)

Garland Laying Mash
Alfalfa leaf meal, soybean meal, fish meal, meat scraps, dried milk, linseed oil meal, wheat bran, wheat middlings, ground oats, ground wheat, corn meal, calcium carbonate and salt. (With or without cod liver oil.)

Garland Turkey Starting & Broiler Mash
Cod liver oil, alfalfa meal, wheat bran, wheat middlings, dried milk, soybean meal, fish meal, meat scraps, ground oats, corn meal, calcium carbonate and salt.

Royal Complete Laying Ration
Corn meal, wheat bran, wheat middlings, ground oats, alfalfa leaf meal, meat scraps, fish meal, soybean meal, dried buttermilk, vitamin tested cod liver oil, calcium carbonate and salt.

Royal 24% Dairy Ration
Soybean meal, ground corn, ground oats, corn gluten feed, wheat and wheat bran processed, distillers dried grains, cottonseed meal, palm kernel meal, molasses, calcium carbonate and salt.

Royal 20% Dairy Ration
Soybean meal, corn gluten feed, distillers dried grains, wheat and wheat bran processed, cottonseed meal, palm kernel meal, ground corn, ground oats, molasses, calcium carbonate and salt.

Royal Laying Mash
Alfalfa meal, corn meal, ground oats, ground wheat, dried milk, wheat bran, wheat middlings, cod liver oil, fish meal, meat scraps, linseed oil meal, soybean meal, calcium carbonate and salt.

Royal Worcester Complete Dairy Ration
Gluten feed, oil meal, ground oats, wheat bran, middlings, corn meal, cottonseed meal, soybean meal, distillers grains, beet pulp, bone meal, calcium carbonate, salt and molasses.

W. K. Gilmore & Sons, Inc.

Conference Mash
Yellow corn meal, standard wheat bran, wheat flour middlings, pure ground oats, meat scraps 50%, pure fish meal 55%, alfalfa leaf meal, milk, calcite flour, cod liver oil, dicalcium phosphate, salt.

Neponset Poultry Mash

Wheat bran, wheat middlings, corn meal, ground oats, alfalfa, beet scraps, fish scraps, linseed oil meal, corn gluten, ground rolled oats, calcite flour, dried skim milk, fine salt, soy bean meal.

John R. Golter

Golter Special Complete Ration
Coarse ground yellow corn, coarse ground fancy wheat, pulverized oats, potassium iodide, flour middlings, wheat bran, alfalfa leaf meal, dried buttermilk, meat scraps, fish meal, soy bean meal, steam bone meal, calcium carbonate, salt, cod liver oil, molasses.

Goode Grain Co.

Goode Laying Mash. Mass. Formula
Yellow corn meal, soy bean meal, wheat middlings, wheat bran, ground oats, meat scrap, fish meal, dried skim or buttermilk, alfalfa meal, calcium carbonate, salt, cod liver oil, Vitidine, a mineral concentrate.

Goode Starting & Growing Mash
Yellow corn meal, soy bean meal, wheat middlings, wheat bran, ground oats, meat scraps, fish meal, dried skim or buttermilk, alfalfa meal, calcium carbonate, salt, cod liver oil, Vitidine, a mineral concentrate.

D. H. Grandin Milling Co.

Grandin's Breeder Mash
Fortified cod liver oil, dried buttermilk, dried whey, meat scraps, fish meal, soybean oil meal, corn gluten meal, dehydrated alfalfa leaf meal, wheat bran, wheat middlings, ground yellow corn, hominy feed, ground wheat, pulverized oats, ground barley, calcium carbonate, salt, potassium iodide, manganese sulphate.

Grandin's Chick Starting Mash
Fortified cod liver oil, dried buttermilk, dried whey, meat scraps, fish meal, soybean oil meal, dehydrated alfalfa leaf meal, wheat bran, wheat middlings, ground wheat, ground yellow corn, feeding oat meal, pulverized oats, ground barley, calcium carbonate, salt, potassium iodide, manganese sulphate.

Grandin's 24% Dairy Feed
Cane molasses, cottonseed meal, soybean oil meal, linseed oil meal, corn gluten meal, corn gluten feed, corn distillers dried grains, wheat bran and wheat middlings (with mill run wheat screenings), yellow corn meal, hominy feed, ground oats, ground barley, steamed bone meal, calcium carbonate, salt and potassium iodide.

Grandin's 20% Dairy Feed
Cane molasses, cottonseed meal, soybean oil meal, linseed oil meal, corn gluten feed, corn distillers' dried grains, wheat bran and wheat middlings (with mill run wheat screenings), yellow corn meal, hominy feed, ground oats, ground barley, steamed bone meal, calcium carbonate, salt and potassium iodide.

Grandin's Fleshing Pellets
Fortified cod liver oil, dried buttermilk, dried whey, meat scraps, fish meal, soybean oil meal, wheat red dog, wheat middlings, ground yellow corn, hominy feed, corn germ meal, pulverized oats, ground barley, calcium carbonate, salt, potassium iodide, manganese sulphate.

Grandin's Growing Mash
Fortified cod liver oil, dried buttermilk, dried whey, meat scraps, fish meal, soybean oil meal, corn gluten feed, dehydrated alfalfa leaf meal, wheat bran, wheat middlings, ground yellow corn, hominy feed, pulverized oats, ground barley, calcium carbonate, salt, potassium iodide, manganese sulphate.

Grandin's Laying Mash
Fortified cod liver oil, dried buttermilk, dried whey, meat scraps, fish meal, soybean oil meal, corn gluten meal, corn gluten feed, dehydrated alfalfa leaf meal, wheat bran, wheat middlings, ground yellow corn, hominy feed, pulverized oats, ground barley, calcium carbonate, salt, potassium iodide, manganese sulphate.

Grandin's Milk Maker
Dried beet pulp, cottonseed meal, soybean oil meal, linseed oil meal, corn gluten meal, corn gluten feed, corn distillers dried grains, wheat bran and wheat middlings (with mill run wheat screenings), yellow corn meal, hominy feed, ground oats, ground barley, steamed bone meal, calcium carbonate, salt and potassium iodide.

Grandin's Start-to-Finish Mash
Fortified cod liver oil, dried buttermilk, dried whey, meat scraps, fish meal, soybean oil meal, corn gluten feed, dehydrated alfalfa leaf meal, wheat bran, wheat middlings, ground wheat, ground yellow corn, hominy feed, pulverized oats, ground barley, calcium carbonate, salt, potassium iodide, manganese sulphate.

Grandin's Twin Six Dairy Feed
Cottonseed meal, soybean oil meal, linseed oil meal, corn gluten meal, corn gluten feed, corn distillers' dried grains, alfalfa meal, wheat bran and wheat middlings (with mill run wheat screenings), yellow corn meal, hominy feed, ground oats, ground barley, steamed bone meal, calcium carbonate, salt and potassium iodide.

Grandin's Twin Six Dairy Feed (Sweetened)
Cane molasses, cottonseed meal, soybean oil meal, linseed oil meal, corn gluten meal, corn gluten feed, corn distillers dried grains, alfalfa meal, wheat bran and wheat middlings (with mill run wheat screenings), yellow corn meal, hominy feed, ground oats, ground barley, steamed bone meal, calcium carbonate, salt and potassium iodide.

M-S (Money Saver) 20% Dairy Feed
Cane molasses, cottonseed meal, soybean oil meal, linseed oil meal, corn gluten feed, corn distillers dried grains, brewers dried grains, wheat bran, wheat middlings, ground wheat screenings, corn feed meal, ground oats, ground barley, steamed bone meal, calcium carbonate, salt and potassium iodide.

M-S (Money Saver) Laying Mash
Fortified cod liver oil, dried buttermilk, dried whey, meat scraps, fish meal, soybean oil meal, corn gluten feed, alfalfa leaf meal, wheat bran, wheat middlings, yellow corn meal, corn feed meal, hominy feed, pulverized oats, ground barley, calcium carbonate, salt, potassium iodide, manganese sulphate.

Hales & Hunter Co.

Red Comb All-Mash
Ground corn, wheat bran, wheat middlings, corn gluten feed, meat scraps, alfalfa meal, soy bean oil meal, pulverized oats, fish meal, dried buttermilk, dried whey, and not over 1½% minerals (calcium carbonate, salt, granulated charcoal, manganese sulphate), cod liver oil, sardine oil.

Red Comb Batry Fed Layer
Ground corn, feeding oat meal, wheat bran, wheat middlings, corn gluten feed, meat scraps, alfalfa meal, soy bean oil meal, pulverized oats, fish meal, dried buttermilk, dried whey and not over 1½% minerals (calcium carbonate, salt, granulated charcoal, manganese sulphate), cod liver oil, sardine oil.

Red Comb Broiler Mash
Ground corn, fine ground feeding oat meal, pulverized oats, wheat bran, wheat middlings' corn gluten feed, meat scraps, alfalfa meal, soy bean oil meal, fish meal, dried buttermilk, dried whey, and not over 3% minerals (calcium carbonate, salt, granulated charcoal, manganese sulphate), sardine oil, cod liver oil.

Red Comb Crate Fattener
Ground corn, ground oat groats, pulverized oats, corn oil cake meal, barley, linseed oil meal, wheat middlings, low grade wheat flour, rolled oats, salt ½%.

Red Comb Egg Mash
Ground corn, feeding oat meal, wheat bran, wheat middlings, corn gluten feed, meat scraps, alfalfa meal, soy bean oil meal, pulverized oats, fish meal, dried buttermilk, dried whey and not over 3% minerals (calcium carbonate, salt, granulated charcoal, manganese sulphate), sardine oil, cod liver oil.

Red Comb Growing Mash
Ground corn, fine ground feeding oat meal, pulverized oats, wheat bran, wheat middlings, corn gluten feed, meat scraps, alfalfa meal, soy bean oil meal, fish meal, dried buttermilk, dried whey, and not over 3% minerals (calcium carbonate, salt, granulated charcoal, manganese sulphate), sardine oil, cod liver oil.

Red Comb Sup-Pel
Concentrated cod liver oil, green dehydrated alfalfa meal, sardine oil, dried buttermilk, dried whey, pulverized barley, wheat germ meal, soy bean oil meal.

Special Red Horn 20% Dairy Feed
Cottonseed meal, linseed oil meal, soybean oil meal, corn distiller's dried grains, wheat bran, corn gluten feed, corn gluten meal, dried brewer's grain, malt sprouts, whole ground corn, crimped oats, ground and bolted screenings from wheat, barley and kafir corn, clipped oat by-product, molasses, salt 1%, calcium carbonate (ground limestone) 2%.

D. Harbeck

Crusader All Purpose Mash
Corn meal, bran, wheat middlings, gr. oats, gr. barley, gr. wheat, meat scraps, fish meal, soya bean meal, gluten meal, alfalfa meal, dried milk or buttermilk, linseed oil meal, charcoal, shell flour, cod liver oil.

Welcome Dairy Feed
Bran, beet pulp, cottonseed meal, corn gluten meal, gr. oats, hominy or corn feed meal, oil meal, middlings, calcium carbonate, steam bone meal 1%, salt 1%.

Welcome Growing Mash
Corn meal, bran, flour middlings, gr. oats, alfalfa meal, meat scraps, fish meal, dried skimmed milk or buttermilk, gr. barley, hominy feed, oil meal, gr. wheat, bone meal, shell flour, salt and cod liver oil.

Welcome Laying Mash
Corn meal, bran, flour middlings, gr. oats, meat scraps, fish meal, alfalfa meal, dried skimmed milk or buttermilk, salt, shell flour and cod liver oil.

Welcome Starter & Broiler Ration
Corn meal, bran, flour middlings, gr. oat groats, or feeding oat meal, dry skimmed milk or dry buttermilk, alfalfa meal, meat scraps, fish meal, shell flour, salt, cod liver oil.

D. B. Hodgkins' Sons

Hodgkins' Dairy Ration
Wheat bran, hominy, ground oats, corn gluten feed, corn meal, cottonseed meal, soy bean meal, linseed meal, beet pulp, brewers' grains, molasses, calcium carbonate and salt.

Hodgkins' Growing Mash
Corn meal, wheat bran, wheat middlings, flour middlings, ground oats, alfalfa meal, dried skim milk, soy bean oil meal, meat scraps, fish meal, oyster shell meal, salt and cod liver oil.

Hodgkins' Poultry Mash
Ground corn, oats, middlings and bran (with screenings not to exceed mill run), corn gluten feed, soy bean meal, corn gluten meal, ground meat scraps, calcium carbonate, dried skim milk or dried buttermilk, dairy salt, fish meal, alfalfa leaf meal and cod liver oil.

Horvitz Grain Co.

Mak-M-Lay Laying Mash
Cod liver oil, wheat bran, corn meal, gluten feed, ground oats, ground barley, red dog, wheat middlings, soya bean meal, meat scraps, alfalfa leaf meal, dried skimmilk, calcium carbonate, charcoal.

Wantmore Dairy Ration
Hominy feed or corn meal, wheat bran, ground oats, gluten feed & gluten meal, linseed meal, cottonseed meal, wheat middlings, calcium carbonate, salt.

Wantmore Dairy with Beet Pulp
Hominy feed or corn meal, wheat bran, gluten feed & gluten meal, linseed meal, cottonseed meal, wheat middlings, salt, beet pulp, ground oats, calcium carbonate.

Wantmore 24% Sweetened Dairy Feed
Soybean oil meal, cottonseed meal, corn gluten feed, corn distillers' dried grains, yellow corn meal or hominy feed, oat mill feed (oat hulls, oat shorts and oat middlings), wheat bran, wheat standard middlings, cane molasses, calcium carbonate, salt.

Wantmore 20% Sweetened Dairy Feed
Soybean oil meal, cottonseed meal, corn gluten feed, corn distillers' dried grains, yellow corn meal or hominy feed, oat meal feed (oat hulls, oat shorts and oat middlings), wheat bran, wheat standard middlings, cane molasses, calcium carbonate, salt.

R. B. Howlett

Ideal Poultry Mash
Wheat bran, yellow corn meal, meat scraps, wheat middlings, ground oats, dried milk, bone meal, alfalfa leaf meal, salt, fish meal.

Jaquith & Co.

Dairy Ration
Wheat bran and middlings, cottonseed meal, oil meal, soya bean meal, salt, gluten feed, alfalfa, ground oats and corn, dried grains, minerals, molasses.

Growing Mash
Ground corn, wheat and oats, soy bean meal, meat and bone meal, salt, dried milk, alfalfa, oil meal and Exadol.

Laying Mash
Ground corn, wheat and oats, gluten feed, oil meal, meat scraps, dried milk, soy bean meal, alfalfa meal, salt and Exadol.

Starting Feed
Ground corn, oats and wheat, dried milk, salt, alfalfa, and Exadol.

Kasco Mills, Inc.

Apex Complete Grower
Corn meal, pulverized oats, ground barley, wheat bran, wheat middlings, soybean oil meal, linseed oil meal, alfalfa meal, meat scrap, fish meal, bone meal, dried skim milk, dried whey, Lactoflavin concentrate, ½ of 1% salt, calcite, tested cod liver oil.

Apex 20% Dairy Ration
Soybean oil meal, cottonseed meal, corn gluten feed, corn gluten meal, wheat bran, ground wheat screenings, oat mill feed (oat middlings, oat shorts and oat hulls), malt sprouts, dried brewers' grains, corn distillers' grains, cane molasses, 1% salt, 1% calcite.

Apex Growing Mash
Corn meal, pulverized oats, ground barley, wheat bran, wheat middlings, linseed oil meal, soybean oil meal, alfalfa meal, meat scrap, fish meal, bone meal, dried skim milk, dried whey, Lactoflavin concentrate, ¾ of 1% salt, calcite, tested cod liver oil.

Apex Laying Mash
Wheat bran, wheat middlings, corn meal, linseed oil meal, soybean oil meal, pulverized oats, ground barley, meat scrap, bone meal, fish meal, dried skim milk, dried whey, Lactoflavin concentrate, ¾ of 1% salt, calcite, tested cod liver oil, alfalfa meal.

Beatsall Milk Grains
Wheat bran, wheat middlings, linseed oil meal, corn distillers' grains, corn gluten feed, corn gluten meal, cottonseed meal, soybean oil meal, hominy feed, ¾ of 1% salt, 1% calcite, beet pulp, molasses.

Kasco All Mash Chick Starter
Wheat red dog, oatmeal, wheat middlings, wheat bran, corn meal, meat scrap, fish meal, bone meal, linseed oil meal, soybean oil meal, pulverized oats, dried skim milk, dried whey, Lactoflavin concentrate, ½ of 1% salt, tested cod liver oil, calcite, alfalfa leaf meal, .0125% manganese sulphate.

Kasco All Mash Grower
Wheat reddog, pulverized oats, oatmeal, wheat middlings, wheat bran, corn meal, meat scrap, fish meal, bone meal, linseed oil meal, soybean oil meal, dried skim milk, dried whey, Lactoflavin concentrate, ½ of 1% salt, tested cod liver oil, calcite, alfalfa leaf meal.

Kasco Broiler Ration
Wheat bran, wheat middlings, wheat reddog, linseed oil meal, corn meal, ground oatmeal, pulverized oats, meat scrap, bone meal, alfalfa leaf meal, dried whey, Lactoflavin concentrate, dried skim milk, tested cod liver oil, salt, calcite, soybean oil meal, fish meal, .0125% manganese sulphate.

Kasco 20% Milk Maker
Cottonseed meal, linseed oil meal, dried brewers' grains, corn distillers grains, corn gluten feed, corn gluten meal, soybean oil meal, corn meal, wheat bran, wheat middlings, ground oats, ground barley, ¾ of 1% salt, 1% calcite, molasses, malt sprouts.

Kasco Open Formula 20% Dairy Ration
Wheat bran, wheat middlings, ground barley, ground oats, malt sprouts, dried brewers' grains, corn distillers' grains, corn gluten feed, soybean oil meal, 41% cottonseed meal, hominy feed, cane molasses, salt, calcite.

Kasco Poultry Flushing Mash
Wheat reddog, oatmeal, wheat middlings, wheat bran, corn meal, pulverized oats, meat scrap, fish meal, bone meal, linseed oil meal, soybean oil meal, dried whey, Lactoflavin concentrate, ½ of 1% salt, tested cod liver oil, calcite, alfalfa leaf meal.

Kasco Sweet 16% Dairy Feed
Wheat bran, corn gluten feed, corn gluten meal, cottonseed meal, soybean oil meal, ground oats, ground barley, ground wheat screenings, corn meal, oat mill feed (oat midds, oat hulls, oat shorts), malt sprouts, dried brewers' grains, corn distillers' grains, molasses, 1% salt, 1% calcite.

Kasco Turkey Grower
Wheat bran, wheat middlings, linseed oil meal, corn meal, pulverized oats, meat scrap, bone meal, dried skim milk, dried whey, Lactoflavin concentrate, fish meal, soybean oil meal, corn gluten meal, ½ of 1% salt, calcite tested cod liver oil, alfalfa meal.

Larrowe Milling Co.

Larro The Ready Ration for Dairy Cows
Cottonseed meal, yellow corn meal, wheat standard middlings, soybean oil meal, o. p. linseed oil meal, corn gluten feed, corn distillers' dried grains, dried beet pulp, wheat bran, ½% limestone, 1% salt.

Larro Broiler Feed
Yellow corn meal, wheat standard middlings, alfalfa meal, wheat bran, meat and bone scraps, soybean oil meal, fish meal, ground oats, dried buttermilk, dried skimmed milk, dried whey, fortified cod liver oil, 2% limestone, ½% salt, .01% manganese dioxide.

Larro Chick Builder
Wheat bran, yellow corn meal, wheat standard middlings, ground barley, meat and bone scraps, soybean oil meal, fish meal, alfalfa meal, dried buttermilk, dried skimmed milk, dried whey, ground oats, fortified cod liver oil, 2½% limestone, ½% salt, .01% manganese dioxide.

Larro Egg Mash
Wheat bran, yellow corn meal, wheat standard middlings, ground barley, meat and bone scraps, soybean oil meal, fish meal, alfalfa meal, dried buttermilk, dried skimmed milk, dried whey, ground oats, fortified cod liver oil, 2½% limestone, ½% salt, .01% manganese dioxide.

Larro Turkey Builder
Wheat standard middlings, yellow corn meal, ground barley, meat and bone scraps, fish meal, soybean oil meal, dried buttermilk, dried skimmed milk, dried whey, alfalfa meal, wheat bran, ground oats, fortified cod liver oil, 1½% limestone, ½% salt, .01% manganese dioxide.

Larro Turkey Finisher
Yellow corn meal, wheat standard middlings, wheat bran, meat and bone scraps, soybean oil meal, ground barley, ground oats, dried buttermilk, dried skimmed milk, dried whey, alfalfa meal, 2½% limestone, ½% salt.

Mansfield Coal & Grain Co.

Manco Laying Mash
Corn meal, ground oats, alfalfa meal, wheat middlings, wheat bran, gluten feed, soya bean meal, beef scraps, fish meal, dried milk, calcium carbonate, salt and cod liver oil.

Mansfield Milling Co.

Mansfield Chick-Growing Mash
Vitamelk base, ground yellow corn, wheat bran, wheat middlings, red dog flour, alfalfa leaf meal, meat scraps, fish meal, feeding oatmeal, soy bean oil meal, charcoal, calcium carbonate 2%, salt 1%.

Mansfield Chick Starter
Vitamelk base, yellow corn meal, wheat bran, wheat middlings, alfalfa leaf meal, bone meal, meat scraps, soy bean oil meal, calcium carbonate 1½%, pulverized oats, salt ½%.

Mansfield Dry Poultry Mash
Vitamelk base, yellow corn meal, wheat bran, wheat middlings, alfalfa meal, meat scraps, pulverized oats, soy bean oil meal, corn gluten feed, bone meal, salt 1%, wheat red dog flour, calcium carbonate 2%.

Mansfield Sweetened "20"
Wheat bran, wheat midds, dried brewers' grains, cotton seed meal, corn gluten feed, corn meal, hominy, linseed oil meal, ground oats, cane molasses, edible bone meal, calcium carbonate, salt.

Maritime Milling Co., Inc.

B-B Broiler Ration
Cod liver oil, kelp meal, milk sugar feed, dried buttermilk, dehydrated alfalfa leaf meal, wheat bran with mill run ground screenings, flour middlings, ground wheat, corn meal, pulverized heavy oats, pulverized barley, ground oat meal, soya bean oil meal, corn gluten meal, meat and bone meal, fish meal, calcium carbonate, salt and potassium iodide.

B-B Complete Chick Starter Ration
Cod liver oil, kelp meal, milk sugar feed, dried buttermilk, dehydrated alfalfa leaf meal, wheat middlings, wheat bran, ground wheat, corn gluten meal, corn meal, pulverized heavy oats, pulverized barley, soya bean oil meal, ground oat meal, meat and bone meal, fish meal, calcium carbonate, salt and potassium iodide.

Sweetened B-B Bull Brand "20" Dairy Ration
Dried brewers grains, cotton seed meal, corn gluten feed, soya bean oil meal, o. p. linseed oil meal, hominy feed, corn meal, wheat bran and wheat middlings with mill run ground screenings, molasses, steamed bone meal, calcium carbonate, salt and potassium iodide.

B-B Bull Brand Dry and Fresh Cow Fitting Ration
Dried beet pulp, hominy feed, alfalfa meal, soya bean oil meal, crushed oats, wheat bran with mill run ground screenings, o. p. linseed oil meal, corn gluten feed, molasses, steamed bone meal, calcium carbonate, salt and potassium iodide.

B-B Flushing and Conditioning Mash
Cod liver oil, milk sugar feed, dried buttermilk, dehydrated alfalfa leaf meal, wheat middlings, corn meal, ground oat meal, soya bean oil meal, meat and bone meal, fish meal, calcium carbonate, salt and potassium iodide.

B-B Growing Mash
Cod liver oil, milk sugar feed, dried buttermilk, dehydrated alfalfa meal, wheat bran and wheat middlings with mill run ground screenings, ground wheat, corn meal, pulverized heavy oats, pulverized barley, ground oat meal, soya bean oil meal, corn gluten meal, meat and bone meal, fish meal, calcium carbonate, salt and potassium iodide.

B-B Layer & Breeder Mash
Cod liver oil, liver meal, kelp meal, milk sugar feed, dried buttermilk, dehydrated alfalfa leaf meal, wheat bran and wheat middlings with mill run ground screenings, soya bean oil meal, corn gluten meal, corn meal, pulverized heavy oats, pulverized barley, ground oat meal, meat and bone meal, fish meal, calcium carbonate, salt and potassium iodide.

B-B Daisy Egg Mash
Dried buttermilk, alfalfa meal, wheat bran and wheat middlings with mill run ground screenings, soya bean oil meal, corn gluten meal, corn meal, pulverized barley, pulverized oats, meat and bone meal, fish meal, calcium carbonate and salt, with or without cod liver oil.

Hi-Test Dairy Feed 24% Pro. Sweetened
Dried brewers grains, cotton seed meal, corn gluten feed, soya bean oil meal, hominy feed, corn meal, ground oats, cleaned, pulverized and bolted grain screenings, wheat bran, molasses' steamed bone meal, calcium carbonate and salt.

Hi-Test Dairy Feed 20% Pro. Sweetened
Dried brewers grains, cotton seed meal, corn gluten feed, soya bean oil meal, hominy feed, ground oats, corn meal, cleaned, pulverized and bolted grain screenings, wheat bran, molasses, steamed bone meal, calcium carbonate and salt.

Marmico 16% Protein Dairy Feed
Dried brewers' grains, soya bean oil meal, cotton seed meal, corn gluten feed, corn meal, cleaned, pulverized and bolted grain screenings, wheat bran, molasses, steamed bone meal, calcium carbonate and salt.

Meadow Sweet Supplemental Dairy Feed
Dried brewers' grains, molasses, beet pulp, corn meal, wheat bran, alfalfa meal, cleaned, pulverized and bolted grain screenings, steamed bone meal, calcium carbonate and salt.

Middlesex County Farm Bureau Association

Farm Bureau Brand All Mash Developer
Corn meal, wheat bran, flour middlings, ground oats, ground barley, alfalfa leaf meal, soybean oil meal 41%, dried skim milk, meat scraps 50%, fish meal 58%, oyster shell meal, sardine oil and cod liver oil, salt.

Farm Bureau Brand All Mash Laying
Yellow corn meal, wheat bran, standard middlings, ground oats, dried skim milk, alfalfa leaf meal, meat scraps 50%, fish meal 58%, oyster shell meal, sardine oil and cod liver oil, salt.

Farm Bureau Brand Dairy Ration 24%
Corn meal, ground oats, wheat bran, corn distiller's grain, cottonseed meal 41%, soybean meal 41%, corn gluten feed, linseed oil meal, cane molasses, oyster shell meal, salt.

Farm Bureau Brand Dairy Ration 20%
Corn meal, ground oats, wheat bran, corn distiller's grain, cottonseed meal 41%, soybean meal 41%, corn gluten feed, linseed oil meal, cane molasses, ground barley, oyster shell meal, salt.

Farm Bureau Brand Dairy Ration 16%
Corn meal, ground oats, wheat bran, corn distiller's grain, cottonseed meal 41%, soybean meal 41%, corn gluten feed, linseed oil meal, ground barley, cane molasses, oyster shell meal, salt.

Farm Bureau Brand Developer
Corn meal, ground oats, pulverized oats, wheat bran, soybean meal 41%, corn gluten meal, alfalfa leaf meal, standard middlings, flour middlings, meat scraps 50%, fish meal 58%, dried skim milk, oyster shell meal, sardine oil, cod liver oil, salt.

Farm Bureau Brand Fattener Mash
Yellow corn meal, corn oil meal, standard middlings, ground oat groats, dried skim milk, flour middlings, ground oats, soybean oil meal, salt.

Farm Bureau Flushing Mash
Corn meal, wheat bran, linseed oil meal (o.p.), dried skim milk, meat scraps, cod liver oil, salt.

Farm Bureau Brand Laying Mash
Corn meal, ground oats, wheat bran, soybean meal 41%, corn gluten meal, alfalfa leaf meal, sardine oil and cod liver oil, standard middlings, meat scraps 50%, fish meal 58%, ground barley, oyster shell meal, salt.

Farm Bureau Brand Laying Mash 20%
Corn meal, Xtrafine ground oats, wheat bran, soybean meal 41%, alfalfa leaf meal, flour middlings, meat scraps 50%, fish meal 58%, dried skim milk, oyster shell flour, cod liver and sardine oil, salt.

Farm Bureau Brand Laying Mash 17%
Corn meal, ground oats, wheat bran, alfalfa leaf meal, flour middlings, meat scraps 50%, fish meal 58%, dried skim milk, oyster shell meal, sardine oil and cod liver oil, salt.

Farm Bureau Brand Starter & Broiler
Corn meal, pulverized oats, wheat bran, corn gluten meal, alfalfa leaf meal, standard middlings, meat scraps 50%, flour middlings, fish meal 58%, dried skim milk, ground oat groats, oyster shell meal, sardine oil, cod liver oil, salt.

Geo. Q. Moon & Co., Inc.

Moon's Growing Mash
Standard middlings, wheat bran (with ground screenings not to exceed mill run), white wheat middlings, pulverized oats, corn meal, hominy feed, meat scrap, fish meal, steamed bone meal, soybean oil meal, alfalfa meal, calcium carbonate, salt, cod liver oil, dried buttermilk, dried skim milk, manganese sulphate, and V.D. (honey locust bean meal, aniseed, pure crushed flaxseed, dried albumen of milk, codfish residue meal, selected blood flour, cocoa, foenugreek seed, potassium iodide, cod liver oil, rice polish, wheat flour middlings, choice cottonseed meal, cocoanut oilcake meal, soybean oilcake meal, special steamed bone meal, linseed oil meal, salt).

Moon's Special A Laying Mash
Hominy feed, corn meal, alfalfa meal, meat scrap, wheat bran & wheat middlings (with ground screenings not to exceed mill run), pulverized oats, fish meal, corn gluten feed, dried skim milk, dried buttermilk, calcium carbonate, salt, cod liver oil, ground barley, soybean oil meal, manganese sulphate, and V.D. (honey locust bean meal, aniseed, pure crushed flaxseed, dried albumen of milk, codfish residue meal, selected blood flour, cocoa, foenugreek seed, potassium iodide, cod liver oil, rice polish, wheat flour middlings, choice cottonseed meal, cocoanut oilcake meal, soybean oilcake meal, special steamed bone meal, linseed oilmeal, salt).

Open Formula Dairy Ration
Wheat bran, yellow hominy feed, ground oats, corn gluten feed, cottonseed meal, soybean oil meal, o. p. linseed oil meal, corn distillers' dried grains, molasses, dicalcium phosphate, salt.

Special A Dairy 20% Ration
Corn gluten feed, corn distillers' grains, rye distillers' grains, cottonseed meal, o. p. linseed oil meal, wheat bran (with ground screenings not to exceed mill run), soybean oil meal, peanut oil meal, hominy feed, calcium carbonate, salt, molasses, babassu meal, palm kernel meal.

U. S. 24% Dairy Ration
Corn gluten feed, rye distillers grains, corn distillers grains, hominy feed, corn meal, soybean oil meal, peanut oil meal, o. p. linseed oil meal, cottonseed meal, alfalfa meal, wheat bran (with ground screenings not to exceed mill run), ground grain screenings, ground and bolted clipped oat by-product, cocoa bean residue meal, calcium carbonate, salt, molasses, ground barley, babassu meal, palm kernel meal.

New England Retail Grain Dealers Co-operative Association, Inc.

New England Quality Chick Starter
Meat meal, fish meal, blood flour meal, oatmeal, pulverized oats, yellow corn meal, corn hominy, wheat bran (may contain mill run of screenings), flour middlings, soybean meal, leaf alfalfa meal, skim or buttermilk, fortified cod liver oil, iodine salt, bone charcoal, iron sulphate, (oyster shell meal), calcium carbonate.

New England Quality 20% Dairy Feed
Choice cottonseed meal, o. p. linseed oil meal, gluten feed, 28% corn distillers, soybean meal, ground wheat, wheat bran (may contain screenings), standard middlings, heavy ground oats, corn meal, or corn hominy feed, choice malt sprouts, 24% brewers grains, cane molasses, bone charcoal, iron sulphate, calcium carbonate, iodine salt.

New England Quality Growing Mash
Meat meal, fish meal, skim or buttermilk, fortified cod liver oil, yellow corn meal, heavy ground oats, ground barley, wheat bran (may contain screenings), soybean oil meal, choice alfalfa meal, flour middlings, oatmeal, iodine salt, bone charcoal, iron sulphate, (oyster shell meal), calcium carbonate.

New England Yankee 20% Dairy Ration
Corn distillers grains, choice malt sprouts, corn gluten feed, o. p. linseed oil meal, corn feed meal or hominy, wheat bran (may contain screenings), dried brewers' grains, choice cottonseed meal, soybean oil meal, cane molasses, salt, iodine, calcium carbonate.

New England Yankee Egg Mash
Meat meal, fish meal, soybean oil meal, corn gluten meal, skim or buttermilk, dried whey, o. p. linseed oil meal, yellow corn meal, wheat bran (may contain screenings), pulverized oats, wheat flour middlings, choice alfalfa, ground barley, salt, iodine, calcium carbonate, U.S.P. cod liver oil, steam bone meal.

Ogden Grain Co.

"Biddy" Laying Mash
Alfalfa meal, pulverized oats, meat scraps, fish meal, dried skim milk, soyabean oil meal, corn meal, ground wheat, wheat bran, wheat middlings (may contain mill run screenings), salt, oyster shell meal, cod liver oil, potassium iodide.

Cloverbloom 24% Dairy Feed
Gluten meal, gluten feed, soyabean oil meal, corn meal or hominy, wheat bran, cotton seed meal, ground oats, oat feed (oat shorts), oat hulls, oat middlings, calcium carbonate, cane molasses, salt.

Pilgrim All Purpose Complete Ration
Alfalfa meal, pulverized oats, meat scraps, dried buttermilk, fish meal, corn meal, wheat middlings, wheat flour middlings (may contain screenings not exceeding mill run), bone meal, cod liver oil, calcium carbonate, Kelco meal, potassium iodide.

Pilgrim "Cackle" 20% Layer—Breeder
Dried skim milk, alfalfa meal, pulverized oats, meat scraps, fish meal, gluten meal, corn meal, soya bean oil meal, wheat bran, wheat middlings, oyster shell meal, cod liver oil, salt, potassium iodide and Vitadine.

Pilgrim Chick and Broiler Ration
Alfalfa leaf meal, fish meal, meat meal, dried skimmilk, corn meal, wheat bran, wheat middlings, gluten meal, flour middlings, pulverized oats, soya bean oil meal, cod liver oil, potassium iodide, calcium carbonate, salt, Vitadine.

Pilgrim Complete Ration
Alfalfa leaf meal, meat scraps, fish meal, corn meal, ground oats, wheat bran, wheat middlings, calcium carbonate, cod liver oil, salt, potassium iodide, and Vitadine.

Pilgrim Growing Mash
Alfalfa meal, dried skim milk, meat scraps, fish meal, wheat middlings, wheat bran, pulverized oats, corn meal, calcium carbonate, salt, cod liver oil, potassium iodide.

Pilgrim Special Laying Mash
Alfalfa meal, pulverized oats, meat scraps, fish meal, dried skim milk, soyabean oil meal, corn meal, ground wheat, wheat bran, wheat middlings (may contain mill run screenings), salt, oyster shell meal, cod liver oil, molasses, potassium iodide.

Thrift 20% Dairy Feed
Soybean oil meal, corn gluten feed, old process linseed oil meal, gluten meal, corn meal, low fibre ground oats, cottonseed meal, standard wheat bran, standard wheat middlings, ground wheat screenings, molasses, calcium carbonate, salt, potassium iodide.

Park & Pollard Co.

Bidwell 20% Dairy Ration
Wheat bran, linseed oil meal, malt sprouts, gluten feed, ground oats, gluten meal, soybean oil meal, ground barley, cottonseed meal, ground grain screenings from wheat, oats, barley, buckwheat and milo; molasses, calcium carbonate and salt.

Bidwell Growing Feed
Dried buttermilk, corn meal, alfalfa meal, ground oats, ground wheat, meat, bone, corn gluten meal, ground buckwheat, wheat bran (may contain mill run wheat screenings), wheat middlings, soybean oil meal, ground barley, fish meal, calcium carbonate, salt and vitamin tested cod liver oil.

Bidwell Laying Mash
Dried buttermilk, alfalfa meal, corn meal, wheat bran (may contain mill run wheat screenings), wheat middlings, fish meal, meat, bone, linseed oil meal, corn gluten meal, soybean oil meal, calcium carbonate, salt and ground: wheat, oats, barley, kaffir corn and buckwheat; vitamin tested cod liver oil.

Bulky-Sweet Dairy Feed
Beet pulp, brewers' dried grains, wheat bran, hominy, ground barley, alfalfa meal, molasses, calcium carbonate and salt.

Doublex 24% Dairy Ration
Wheat bran, linseed oil meal, soybean oil meal, ground oats, malt sprouts, corn gluten meal, cottonseed meal, corn gluten feed, ground grain screenings from wheat, oats, barley, buckwheat and milo; molasses, calcium carbonate and salt.

Doublex 20% Dairy Ration
Linseed oil meal, corn gluten feed, brewers' dried grains, ground oats, corn gluten meal, soybean oil meal, corn distillers' grains, ground barley, wheat bran, malt sprouts, cottonseed meal, ground grain screenings from wheat, oats, barley, buckwheat and milo; molasses, calcium carbonate and salt.

Lay or Bust Dry-Mash
Dried buttermilk, alfalfa leaf meal, corn gluten meal, Iodol fish meal, meat, bone, linseed oil meal, soybean oil meal, wheat bran (may contain mill run wheat screenings), wheat middlings, calcium carbonate, salt, ground: corn, wheat, oats, barley, kaffir corn and buckwheat; vitamin tested cod liver oil.

Manamar Doublex 20% Dairy Ration
Kelp, Pacific Coast fish meal, marine sea shells, linseed oil meal, corn gluten feed, brewers' dried grains, ground oats, corn gluten meal, soybean oil meal, ground barley, corn distillers' grains, wheat bran, malt sprouts, cottonseed meal, ground grain screenings from wheat, oats, barley, buckwheat and milo; molasses, calcium carbonate and salt.

Manamar Lay or Bust Dry-Mash
Kelp, Pacific Coast fish meal and marine sea shells, dried buttermilk, alfalfa leaf meal, corn gluten meal, meat, bone, linseed oil meal, soybean oil meal, wheat bran (may contain mill run wheat screenings), wheat middlings, calcium carbonate, salt, ground: corn, wheat, oats, barley, kaffir corn and buckwheat; vitamin tested cod liver oil.

Manamar Life Cycle Mash
Kelp, Pacific Coast fish meal and marine sea shells, meat scrap, wheat bran (may contain mill run wheat screenings), wheat middlings, soybean oil meal, alfalfa leaf meal, corn gluten meal, dried buttermilk, ground: yellow corn, oats, wheat, barley and buckwheat; vitamin tested cod liver oil, manganese sulphate.

Milkmaid 24% Sweetened Dairy Ration
Corn gluten feed, linseed oil meal, cottonseed meal, ground barley, corn distillers' dried grains, soybean oil meal, wheat bran, brewers' dried grains, malt sprouts, corn gluten meal, corn meal, molasses, calcium carbonate and salt.

Milkmaid 20% Dairy Ration
Corn gluten feed, linseed oil meal, cottonseed meal, ground barley, corn distillers' dried grains, soybean oil meal, ground oats, wheat bran, brewers' dried grains, malt sprouts, corn gluten meal, corn meal, cane molasses, calcium carbonate and salt.

Milkmaid 20% Dairy Ration with Manamar
Kelp, Pacific Coast fish meal and marine sea shells, corn gluten feed, linseed oil meal, cottonseed meal, ground barley, corn distillers' dried grains, soybean oil meal, ground oats, wheat bran, brewers' dried grains, malt sprouts, corn gluten meal, corn meal, cane molasses, calcium carbonate and salt.

Park & Pollard Breeder Mash
Yellow corn meal, pulverized oats, alfalfa leaf meal, wheat bran, wheat middlings, meat scrap, fish meal, old process linseed oil meal, corn gluten meal, soybean oil meal, dried buttermilk, dried whey, vitamin tested cod liver oil, calcium carbonate and salt.

Park & Pollard Chick Starter
Dried buttermilk, ground: corn, wheat, oats, barley, oat meal; Iodol fish meal, meat scrap, wheat bran, wheat middlings, corn gluten meal, soybean oil meal, alfalfa leaf meal, calcium carbonate, salt, vitamin tested cod liver oil, manganese sulphate.

Park & Pollard Fleshing Pellets
Yellow corn meal, ground barley, ground oats, dehydrated alfalfa leaf meal, meat scrap, wheat bran (may contain mill run wheat screenings), wheat middlings, linseed oil meal, gluten feed, molasses, dried buttermilk, calcium carbonate and cod liver oil.

Park & Pollard Starter & Broiler Mash
Ground yellow corn, wheat bran, wheat flour middlings, pulverized oats, fish meal, meat scrap, corn gluten meal, soybean oil meal, alfalfa leaf meal, calcium carbonate, salt, dried skim milk, vitamin tested cod liver oil, manganese sulphate.

Park & Pollard Turkey Grower
Yellow corn meal, ground barley, dehydrated alfalfa leaf meal, ground oats, meat scrap, wheat bran, wheat middlings, corn gluten meal, soybean oil meal, dried buttermilk, dried skim milk, calcium carbonate, salt and vitamin tested cod liver oil.

George H. Parker Grain Co.

Parker's Egg Mash
Yellow corn meal, wheat bran, wheat middlings, ground oats, dried skim milk, meat scraps, fish meal, alfalfa leaf meal, soy bean meal, edible bone meal, calcium carbonate, charcoal, vitamin tested cod liver oil and salt.

Parker's Special Dairy Ration
Wheat bran, yellow corn meal, hominy, old process linseed meal, soy bean meal, oat feed, corn gluten feed, cottonseed meal, molasses, calcium carbonate, steamed bone meal, and salt.

Phaneuf & Son

O-Boy All Mash Starter
Fish meal, soybean oil meal, meat scraps, milk sugar feed, or dried whey (feeding), corn gluten meal, standard wheat middlings, wheat bran, cocoanut oil meal, liver meal, alfalfa leaf meal, ground oat meal, ground yellow corn, charcoal, essential minerals (calcium carbonate, calcium phosphate, calcium sulphate, iron sulphate, sulphur, iodine, and salt), cod liver oil.

O-Boy Egg Mash
Ground yellow meal and ground oats, fish meal, soybean oil meal, meat scraps, milk sugar feed, or dried whey (feeding), corn gluten meal, standard wheat middlings, wheat bran, cocoanut oil meal, liver meal, alfalfa leaf meal, essential minerals (calcium carbonate, calcium phosphate, calcium sulphate, iron sulphate, sulphur, iodine, and salt), cod liver oil.

O-Boy Grower
Ground yellow meal and ground oats, fish meal, soybean oil meal, meat scraps, milk sugar feed, or dried whey (feeding), corn gluten meal, standard wheat middlings, wheat bran, cocoanut oil meal, liver meal, alfalfa leaf meal, essential minerals (calcium carbonate, calcium phosphate, calcium sulphate, iron sulphate, sulphur, iodine, and salt), cod liver oil.

W. N. Potter Grain Stores, Inc.

A. D. P. 24% Dairy Ration
Ground corn, hominy, cotton seed meal, corn gluten meal, wheat bran, ground oats, oilmeal, calcium carbonate, bone meal and salt.

Potter's Sweetened Dairy Ration
Gluten feed, hominy, linseed oilmeal, ground oats, wheat bran, standard wheat middlings, cotton seed meal, corn distillers' grains, molasses, calcium carbonate, bone meal and salt.

H. C. Puffer Co.

Egg-Em-On Growing Feed
Corn feed meal, corn gluten feed, ground barley, feeding oatmeal, soy bean meal, wheat bran, wheat middlings, meat scraps, fish meal, dried milk, alfalfa meal, cod liver oil, salt, calcium carbonate.

Egg-Em-On Laying Mash
Dried milk, dried fish, meat scraps, wheat bran and wheat middlings (not exceeding mill run of screenings), corn feed meal, corn gluten feed, feeding oatmeal, soy bean meal, linseed meal, alfalfa meal, cod liver oil, small percentage salt and calcium carbonate.

Egg-Em-On Starting & Broiler Mash
Corn meal, wheat bran, wheat middlings, red dog middlings, ground oat groats, dried milk (skim or buttermilk), alfalfa leaf meal, fish meal, meat scraps, dicalcium phosphate, cod liver oil, oyster shell meal and salt.

Producer Dairy Feed
Linseed oil meal, cotton seed meal, corn gluten feed, soy bean meal, ground oats, corn feed meal or hominy meal, wheat bran and wheat middlings (not exceeding mill run of screenings), small percentage salt and calcium carbonate.

Sweetened Producer Dairy Feed
Linseed oil meal, cotton seed meal, corn gluten feed, soy bean meal, corn feed meal or hominy meal, wheat bran (not exceeding mill run of screenings), oat feed, molasses, small percentage salt and calcium carbonate.

Quaker Oats Co.

Big Egg All Mash Starter—Grower
Yellow hominy feed, wheat bran, wheat standard middlings, ground oats, fish meal, cod liver meal, meat scraps, fortified sardine oil, dried buttermilk, molasses, alfalfa meal, ¾ of 1% salt.

Ful-O-Pep Egg-Breeder Mash
Oatmeal, hominy feed, yellow hominy feed, wheat bran, wheat standard middlings, barley meal, fish meal, cod liver meal, meat scraps, fortified sardine oil, dried whey, dried buttermilk, molasses, alfalfa meal, ¾ of 1% salt.

Ful-O-Pep Turkey Grower
Oatmeal, hominy feed, yellow hominy feed, wheat bran, wheat standard middlings, barley meal, fish meal, cod liver meal, meat scraps, fortified sardine oil, dried whey, dried buttermilk, molasses, alfalfa meal, ¾ of 1% salt.

Quaker 20% Protein Dairy Ration
Hominy feed, yellow hominy feed, barley feed, cottonseed meal, corn distillers' grains, corn gluten feed, soybean oil meal, wheat bran, wheat standard middlings, oat mill feed (oat hulls, oat shorts, oat middlings), ¾ of 1% salt, 1% iodized ground limestone, 1% bone meal, molasses.

Quaker 16% Protein Dairy Ration
Hominy feed, yellow hominy feed, barley feed, cottonseed meal, soybean oil meal, corn gluten feed, wheat bran, wheat standard middlings, ground oat screenings, oat mill feed (oat hulls, oat shorts, oat middlings), ¾ of 1% salt, 1% iodized ground limestone, 1% bone meal, molasses.

Ralston Purina Co.

Purina Broiler Chow
Pur-A-Tene (carotene), cod liver oil, sardine oil, meat scrap, fish meal, soy bean oil meal, dried buttermilk, dried whey, alfalfa leaf meal, corn meal, ground oats, wheat middlings (standard), wheat bran, alfalfa meal, 1½% calcium carbonate (limestone), ½% iodized salt.

Purina Chick Growena
Pur-A-Tene (carotene), cod liver oil, sardine oil, meat scrap, fish meal, soy bean oil meal, wheat germ, dried buttermilk, dried whey, alfalfa meal, corn meal, beet pulp, wheat middlings (grey), wheat bran, 1½% calcium carbonate (limestone), ½% iodized salt.

Purina Chick Startena
Pur-A-Tene (carotene), cod liver oil, sardine oil, meat scrap, fish meal, soy bean oil meal, alfalfa leaf meal, wheat germ, dried buttermilk, dried whey, linseed meal, corn germ meal, oat middlings, corn meal, wheat bran, wheat middlings (grey), 1½% calcium carbonate (limestone), ½% iodized salt.

Purina Chicken Fatena
Ground oats, corn meal, ground barley, corn germ meal, wheat flour (second clear), wheat middlings (grey), soy bean oil meal, meat scrap, rolled oats, ½% iodized salt.

Purina Dry and Freshening Chow
Pur-A-Tene (carotene), soy bean oil meal, corn gluten meal, crushed oats, dried beet pulp, corn meal, alfalfa meal, wheat middlings (standard), wheat bran, molasses, 2% calcium carbonate (limestone), 2% iodized salt.

Purina Duck Breeder Chow
Corn meal, ground oats, alfalfa leaf meal, wheat bran, dried buttermilk, dried whey, wheat flour (second clear), meat scrap, fish meal, wheat germ, cod liver oil, sardine oil, ½% iodized salt, ½% calcium carbonate (limestone).

Purina Family Flock Chow
Pur-A-Tene (carotene), meat scrap, soy bean oil meal, alfalfa meal, dried buttermilk, wheat middlings (standard), wheat bran, corn meal, ground barley, corn gluten feed, cod liver oil, sardine oil, 4% calcium carbonate (limestone), ½% iodized salt.

Purina Growing Chow
Pur-A-Tene (carotene), cod liver oil, sardine oil, meat scrap, fish meal, soy bean oil meal, wheat germ, dried buttermilk, dried whey, corn germ meal, wheat middlings (grey), wheat bran, alfalfa meal, corn meal, 3% calcium carbonate (limestone), 1% iodized salt.

Purina Lay Chow
Pur-A-Tene (carotene), cod liver oil, sardine oil, meat scrap, soy bean oil meal, fish meal, alfalfa meal, dried buttermilk, dried whey, corn germ meal, wheat middlings (standard), wheat bran, corn meal, ground oats, 1% iodized salt, 3% calcium carbonate (limestone).

Purina Layena (Complete Ration)
Pur-A-Tene (carotene), cod liver oil, sardine oil, meat scrap, ground oats, fish meal, soy bean oil meal, alfalfa meal, dried buttermilk, dried whey, wheat middlings (standard), beet pulp, corn meal, ½% iodized salt, 4% calcium carbonate (limestone).

Purina Milk Chow (for Dairy Cows)
Soy bean oil meal, cottonseed meal, distillers' corn dried grains, corn gluten feed, crushed oats, corn meal, wheat middlings (standard), alfalfa meal, wheat bran, brewers' dried grains, molasses, 2% calcium carbonate (limestone), 1% iodized salt.

Purina Milking Cow Chow (24%)
Linseed meal, soy bean oil meal, corn gluten feed, cottonseed meal, distillers' corn dried grains, brewers' dried grains, wheat middlings (standard), wheat bran, alfalfa meal, molasses, 2% calcium carbonate (limestone), 1% iodized salt.

Purina Milking Cow Chow (20%)
Dried beet pulp, linseed meal, soy bean oil meal, corn gluten feed, cottonseed meal, distillers' corn dried grains, brewers' dried grains, wheat middlings (standard), wheat bran, corn meal, alfalfa meal, molasses, 2% calcium carbonate (limestone), 1% iodized salt.

Purina Milking Cow Chow (16%)
Linseed meal, soy bean oil meal, corn gluten feed, crushed oats, ground barley, cottonseed meal, distillers' corn dried grains, brewers' dried grains, wheat middlings (standard), wheat bran, corn meal, alfalfa meal, dried beet pulp, molasses, 2% calcium carbonate (limestone), 1% iodized salt.

Purina Turkey Breeder Chow
Pur-A-Tene (carotene), cod liver oil, sardine oil, meat scrap, fish meal, ground oats, dried buttermilk, dried whey, alfalfa leaf meal, corn meal, wheat middlings (grey), alfalfa meal, soy bean oil meal, wheat bran, 3% calcium carbonate (limestone), 1% iodized salt.

Purina Turkey Growena
Pur-A-Tene (carotene), meat scrap, soy bean oil meal, alfalfa meal, dried buttermilk, dried whey, corn meal, wheat middlings (grey), wheat bran, corn gluten meal, ½% iodized salt.

Purina Turkey Growing Chow
Pur-A-Tene (carotene), meat scrap, soy bean oil meal, alfalfa meal, dried buttermilk, dried whey, corn meal, wheat middlings (standard), wheat bran, ½% iodized salt.

D. F. Riley

Riley's Chick & Broiler Ration
Corn meal, wheat bran, flour middlings, dried skim milk, beef scraps, oil meal, feeding oatmeal, ground limestone, alfalfa leaf meal, salt, XX cod liver oil.

Riley's 20% Dairy Ration
Gluten feed, wheat middlings, linseed oil, soy bean oil meal, 41% cottonseed meal, wheat bran, dried brewer grains, corn meal or hominy, bone meal, salt.

Riley's Growing Mash
Yellow corn meal, wheat bran, flour middlings, dried skim milk, oil meal, ground oats, ground lime stone, bone meal, cod liver oil.

Riley's Laying Mash
Wheat middlings, wheat bran, yellow corn meal, gluten feed, ground oats, beef scraps, fish meal, dried skim milk, o. p. oil meal, alfalfa leaf meal, calcium carbonate, salt, fortified cod liver oil.

Edward Roy

Roy's Chick Starter & Grower
Wheat bran, wheat middlings, pulverized oats, yellow corn meal, meat scraps, fish meal, soybean oil meal, dehydrated alfalfa meal, dried milk, fortified sardine oil, calcium carbonate, salt.

Roy's Hen Mash
Wheat bran, wheat middlings, pulverized oats, yellow corn meal, meat scraps, fish meal, soybean oil meal, dehydrated alfalfa meal, dried milk, fortified sardine oil, calcium carbonate, salt.

Ryther & Warren

Blue Tag Dairy Ration
41 per cent cottonseed meal, soy bean oil meal, corn gluten feed, hominy feed (or corn meal), pure wheat bran, wheat middlings, ground oats, corn distillers' grains, dried beet pulp, calcium carbonate and salt.

Minot Chick Mash
Corn meal, wheat bran (pure), flour middlings, ground oat meal, meat scraps 50% pro., fish meal 60% pro., powdered milk, alfalfa leaf meal, corn gluten meal, shell flour, salt, and fortified cod liver oil.

Minot Complete Laying Mash
Corn meal, pure wheat bran, wheat middlings, ground oats, ground barley, alfalfa leaf meal, meat scraps, fish meal, dried milk, cod liver meal, shell meal and salt.

Minot Growing Mash
Corn meal, pure bran, wheat middlings, ground oats, ground barley, corn gluten meal, soy bean oil meal, alfalfa leat meal, meat scraps, fish meal, salt, oyster shell meal and fortified cod liver oil.

Minot Milk Egg Mash
Corn meal, pure bran, flour middlings, ground oats, meat scraps 50% pro., fish meal 60% pro., alfalfa leaf meal, powdered milk, corn gluten meal, shell flour, salt and fortified cod liver oil.

Minot Poultry Mash
Wheat bran, wheat middlings, red dog middlings, corn meal, gluten feed, alfalfa meal, ground oats, meat scraps, fish meal, shell meal and salt.

Minot Special Dairy Ration
Wheat bran, ground oats, gluten feed, cottonseed meal 41%, soy bean meal, hominy feed or corn meal, corn distillers' grains, dried brewers' grains, calcium carbonate and salt.

St. Albans Grain Co.

Hygrade 24 Milk Ration
Old process linseed meal, soybean oil meal, cottonseed meal, corn gluten meal, corn gluten feed, brewers' dried grains, yellow corn meal, hominy feed, ground oats, ground barley, wheat bran, wheat standard middlings, cane molasses, calcium carbonate and salt.

Utility 20 Dairy Ration
Old process linseed meal, soybean oil meal, cottonseed meal, corn gluten feed, brewers' dried grains, yellow corn meal, hominy feed, ground oats, ground barley, oat mill feed (oat hulls, oat shorts and oat middlings), wheat bran, wheat standard middlings, cane molasses, calcium carbonate and salt.

Utility 16 Dairy Ration
Old process linseed meal, cottonseed meal, corn gluten meal, corn gluten feed, brewers' dried grains, yellow corn meal, hominy feed, ground oats, ground barley, oat mill feed (oat hulls, oat shorts and oat middlings), wheat bran, wheat standard middlings, cane molasses, calcium carbonate and salt.

Wirthmore 25 Balanced Ration
Old process linseed meal, soybean oil meal, cottonseed meal, corn gluten meal, corn gluten feed, corn distillers' dried grains, yellow corn meal, ground oats, ground barley, wheat bran, wheat standard middlings, cane molasses, steamed bone meal and salt.

Wirthmore Breeder Mash
Fortified cod liver oil, dried skimmed milk, dried whey, liver meal, meat scraps, fish meal, soybean oil meal, corn gluten meal, dehydrated alfalfa meal, yellow corn meal, wheat bran, wheat standard middlings, pulverized oats, ground barley, calcium carbonate, manganese sulphate and salt.

Wirthmore Complete Chick Starter and Broiler Ration
Fortified cod liver oil, dried skimmed milk, dried whey, meat scraps, fish meal, soybean oil meal, corn gluten meal, alfalfa leaf meal, yellow corn meal, wheat bran, wheat standard middlings, ground oat groats, calcium carbonate, manganese sulphate and salt.

Wirthmore Complete Egg Ration
Fortified cod liver oil, dried skimmed milk, dried whey, meat scraps, fish meal, soybean oil meal, corn gluten meal, dehydrated alfalfa meal, yellow corn meal, ground wheat, wheat bran, wheat standard middlings, ground oats, ground barley, calcium carbonate and salt.

Wirthmore Complete Growing Ration
Fortified cod liver oil, dried skimmed milk, dried whey, meat scraps, fish meal, soybean oil meal, corn gluten meal, dehydrated alfalfa meal, yellow corn meal, ground wheat, wheat bran, wheat standard middlings, ground oats, ground barley, calcium carbonate and salt.

Wirthmore Complete Laying Ration
Fortified cod liver oil, dried skimmed milk, dried whey, liver meal, meat scraps, fish meal, dehydrated alfalfa meal, yellow corn meal, ground wheat, wheat bran, wheat standard middlings, ground oats, oat groats, calcium carbonate and salt.

Wirthmore 20 Dairy Ration
Fortified cod liver oil, old process linseed meal, soybean oil meal, cottonseed meal, corn gluten meal, corn gluten feed, corn distillers' dried grains, yellow corn meal, ground oats, ground barley, wheat bran, wheat standard middlings, cane molasses, steamed bone meal and salt.

Wirthmore 16 Dairy Ration
Fortified cod liver oil, old process linseed meal, soybean oil meal, cottonseed meal, corn gluten meal, corn gluten feed, corn distillers' dried grains, yellow corn meal, hominy feed, ground oats, ground barley, wheat bran, wheat standard middlings, cane molasses, steamed bone meal, calcium carbonate and salt.

Wirthmore Fleshing Pellets
Fortified cod liver oil, dried skimmed milk, dried whey, meat scraps, soybean oil meal, corn oil meal, dehydrated alfalfa meal, yellow corn meal, wheat bran, wheat standard middlings, pulverized oats, pulverized barley, calcium carbonate, salt and cane molasses.

Wirthmore Fleshing & Fattening Mash
Fortified cod liver oil, dried skimmed milk, dried whey, meat scraps, yellow corn meal, hominy feed, ground wheat, wheat standard middlings, wheat red dog, pulverized oats, feeding oat meal and pulverized barley.

Wirthmore Growing Mash
Fortified cod liver oil, dried skimmed milk, dried whey, meat scraps, fish meal, soybean oil meal, dehydrated alfalfa meal, yellow corn meal, wheat bran, wheat standard middlings, ground oats, ground barley, calcium carbonate and salt.

Wirthmore Laying Mash
Fortified cod liver oil, dried skimmed milk, dried whey, meat scraps, fish meal, soybean oil meal, corn gluten meal, dehydrated alfalfa meal, yellow corn meal, ground wheat, wheat bran, wheat standard middlings, ground oats, ground barley, calcium carbonate and salt.

Wirthmore Laying Pellets
Fortified cod liver oil, dried skimmed milk, dried whey, meat scraps, fish meal, soybean oil meal, dehydrated alfalfa meal, yellow corn meal, wheat bran, wheat standard middlings, pulverized oats, pulverized barley, calcium carbonate and salt.

Wirthmore 32% Ration
Old process linseed meal, soybean oil meal, cottonseed meal, corn gluten meal, corn gluten feed, corn distillers' dried grains, wheat bran, cane molasses, steamed bone meal, calcium carbonate and salt.

Wirthmore Record Ration
Old process linseed meal, soybean oil meal, corn gluten meal, corn distillers' dried grains, yellow corn meal, hominy feed, crimped oats, ground oats, ground barley, dried beet pulp, wheat bran, wheat standard middlings, cane molasses, fish meal, steamed bone meal and salt.

Wirthmore Turkey Breeder Ration
Fortified cod liver oil, dried skimmed milk, dried whey, meat scraps, fish meal, soybean oil meal, corn gluten meal, dehydrated alfalfa meal, yellow corn meal, wheat bran, wheat standard middlings, ground oats, ground barley, calcium carbonate and salt.

Wirthmore Turkey Fattening Ration
Dried skimmed milk, dried whey, meat scraps, soybean oil meal, corn gluten meal, alfalfa leaf meal, yellow corn meal, wheat bran, wheat standard middlings, wheat red dog, ground oats, ground barley, calcium carbonate and salt.

Wirthmore Turkey Growing Ration
Fortified cod liver oil, dried skimmed milk, dried whey, meat scraps, fish meal, soybean oil meal, corn gluten meal, alfalfa leaf meal, yellow corn meal, wheat bran, wheat standard middlings, wheat red dog, ground oats, ground barley, calcium carbonate and salt.

Mrs. Annie P. Smith

Pentucket Laying Mash
Meal, wheat bran, wheat flour middlings, feeding oat meal, 50% meat scraps, 52% fish meal, leaf alfalfa meal, edible bone meal, charcoal, calcite flour, salt.

Smith-Bodfish-Swift Co.

Paramount Mash
Fortified cod liver oil, meat scraps, fish meal, wheat bran, wheat standard middlings, alfalfa meal, steamed bone meal, feeding oat meal, hominy feed, yellow corn meal, calcium carbonate, salt.

Squier & Co.

Squiers Buttermilk Egg Mash
Dried buttermilk, meat scrap, fish meal, bone meal, corn gluten feed, alfalfa meal, wheat bran, wheat middlings, corn meal, ground oats, soyabean oil meal, calcium phosphate and salt.

C. H. Symmes & Co.

The Ideal Dairy Ration
Wheat middlings, wheat bran, brewers' grains, cottonseed meal, linseed meal, gluten meal, gluten feed, corn meal, or white hominy, molasses, salt, bone meal, calcium carbonate, ground barley.

Tioga Mills, Inc.

Tasty Laying Food
Dried skim milk, vacuum dried fish meal, meat and bone scrap, soybean oil meal, corn meal, wheat middlings, wheat bran, alfalfa leaf meal, corn gluten meal, salt, cod liver oil, pulverized oats, Colloidaltine (a mineral compound composed of calcium carbonate and the phosphates of calcium, iodine, iron, copper, manganese, sulphur, and 12 other rare minerals, all in colloidal form). (Wheat bran and wheat middlings may contain ground screenings not exceeding mill run.)

United Cooperative Farmers, Inc.

United Farmers Growing Mash
Coarse No. 2 yellow corn meal, wheat bran, wheat flour midds, pulverized 38# white oats, meat scraps 50%, fish meal 55%, dried skim milk, gluten feed, alfalfa leaf meal, oyster shell flour, high grade cod liver oil, salt.

United Farmers Milk Egg Mash
No. 2 yellow meal—attrition, standard wheat bran, wheat flour midds, pure pulv. oats (no. 2–38 lb. clipped-unsul.), meat scraps 50%, fish meal 55%, alfalfa leaf meal, dried skim milk, oyster shell meal, high grade cod liver oil, salt.

United Farmers Milkmaker
Choice cottonseed 41%, o. p. linseed oil meal, hominy feed or corn meal, gluten feed, ground oats, ground barley, corn distillers' grains, bran (standard or pure), soya bean meal, steamed bone meal, calcium carbonate, salt.

United Farmers Starting Mash
No. 2 yellow corn meal—attrition, wheat flour middlings, standard wheat bran, feeding oatmeal, pure dried skim milk, meat scraps 50%, pure fish meal 55%, alfalfa leaf meal, oyster shell meal, salt, high grade cod liver oil.

Unity Feeds, Inc.

Life Saver 20% Dairy Ration
Soybean oil meal, corn gluten feed, cottonseed meal, wheat and wheat bran processed, ground oats, oat mill feed (oat hulls, oat shorts, oat middlings), ground corn, molasses, calcium carbonate and salt.

Paycheck 20% Dairy Ration
Distillers' dried grains, corn gluten feed, soya bean oil meal, wheat and wheat bran processed, cottonseed meal, palm kernel meal, ground corn, ground oats, molasses, calcium carbonate and salt.

Paycheck Laying Mash
Dried buttermilk, vitamin tested cod liver oil, alfalfa meal, corn meal, ground wheat, ground oats, wheat bran, wheat middlings, fish meal, meat scraps, linseed oil meal, soya bean meal, calcium carbonate and salt.

Unity Chick Starter
Dried buttermilk, vitamin tested cod liver oil, corn meal, ground wheat, ground barley, ground oats, oat meal, fish meal, meat scraps, wheat bran, wheat middlings, alfalfa leaf meal, calcium carbonate and salt.

Unity 20% Dairy Ration
Corn gluten feed, linseed oil meal, brewers' dried grains, soya bean meal, cottonseed meal, distillers' dried grains, malt sprouts, palm kernel meal, wheat bran, wheat middlings, corn meal, fish meal, molasses, calcium carbonate and salt.

Unity Growing Mash
Dried buttermilk, vitamin tested cod liver oil, alfalfa leaf meal, fish meal, meat scraps, linseed oil meal, wheat bran, wheat middlings, soya bean meal, ground oats, ground wheat, corn meal, calcium carbonate and salt.

Unity Laying Mash
Dried buttermilk, vitamin tested cod liver oil, alfalfa leaf meal, soya bean meal, fish meal, meat scraps, linseed oil meal, wheat bran, wheat middlings, ground oats, ground wheat, corn meal, calcium carbonate and salt.

Arthur Ventura Grain Co.

Ventura's Starter
Wheat bran, wheat middlings, corn meal, feeding oat meal, pulverized oats, dried skim milk, fish meal, beef scraps, alfalfa leaf meal, calcium carbonate, charcoal, salt, and Exadol.

Vitality Mills, Inc.

Vitality 20% Dairy Ration
Distillers grains, soybean oil meal, cottonseed meal, wheat bran, corn gluten feed, ground yellow corn, ground oats, corn gluten meal, cane molasses, bone meal, calcium carbonate, salt.

Vitality Homestead Egg Mash
Dried buttermilk, meat scraps, soybean oil meal, fine ground alfalfa meal, corn gluten feed, yellow corn meal, wheat standard middlings, wheat bran, ground oats, bone meal, 2% calcium carbonate (from limestone), 1% salt, cod liver oil.

C. P. Washburn Co.

"Made Right" Balanced Ration
Cottonseed meal, linseed oil meal, corn gluten, wheat bran, corn meal, oat feed, beet pulp, charcoal, calcium carbonate, salt, bone meal, ground oats, soya bean meal, brewers' grain, calcium phosphate, iodine, manganese.

"Made Right" Complete Broiler Ration
Fortified cod liver oil, whey and dried milk powder, corn meal, bran, middlings, wheat germ, oat meal, high grade meat scraps, fish meal, ground wheat, soya bean meal, gluten, alfalfa leaf meal, molasses, calcium carbonate, charcoal, salt, minerals, iron oxide, iodine, manganese.

"Made Right" Complete Layer
Fortified cod liver oil, whey and dried milk powder, corn meal, bran, middlings, wheat germ, oat meal, high grade meat scraps, fish meal, ground wheat, soya bean meal, gluten, alfalfa leaf meal, molasses, calcium carbonate, charcoal, salt, minerals, iron oxide, iodine, manganese.

"Made Right" 16% Dairy Feed
Corn meal, ground oats, cottonseed meal, wheat bran, soya bean meal, gluten, molasses, bone meal, calcium carbonate, salt, brewers' grain, calcium phosphate, salt, manganese, iodine.

"Made Right" Dry Mash
Corn meal, wheat bran, wheat middlings, wheat germ, red dog, 2nd clear flour, gr. oat meal, linseed oil meal, gluten feed, soya bean meal, ground wheat, meat scraps, fish meal, whey and dried milk powder, alfalfa leaf meal, molasses, charcoal, calcium carbonate, salt, cod liver oil, calcium phosphate, minerals, iron oxide, iodine, manganese.

"Made Right" Sweet Dairy Feed
Corn meal, ground oats, cottonseed meal, linseed oil meal, wheat bran, soya bean meal, gluten, molasses, bone meal, calcium carbonate, salt, brewers' grain, manganese, iodine, calcium phosphate.

H. K. Webster Co.

Blue Seal All-Mash Growing Ration
Coarse ground No. 2 yellow corn, ground barley, fine ground heavy oats, pure wheat bran, wheat flour middlings, high grade meat scraps, 55% codfish meal, dried skim milk, alfalfa leaf meal, corn gluten meal, P. R. cane molasses, calcium carbonate, salt, cod liver oil.

Blue Seal Breeders' Mash
Dehydrated alfalfa leaf meal, dried skim milk with Lactoflavin supplement, pure natural cod liver oil, wheat germ oil, h. g. meat and liver meals, 55% fish meal, corn gluten meal, P. R. cane molasses, No. 2 yellow corn meal, pure wheat bran, wheat flour middlings, fine ground heavy oats, ground rolled oats, ground barley, salt, calcium carbonate.

Blue Seal Broiler Ration
Dried skim milk, h. g. meat scraps, 55% codfish meal, alfalfa leaf meal, corn gluten meal, No. 2 yellow corn meal, pure wheat bran, wheat flour middlings, fine ground heavy oats, P. R. cane molasses, calcium carbonate, salt, cod liver oil.

Blue Seal Chick Builder
High grade meat scraps, dried skim milk, 55% codfish meal, alfalfa leaf meal, corn gluten meal, yellow corn meal, pure wheat bran, pure wheat middlings, fine ground oats, P. R. cane molasses, calcium carbonate, salt, cod liver oil.

Blue Seal Chick Starter
Coarse ground No. 2 yellow corn, fine ground heavy oats, ground barley, corn gluten meal, pure wheat bran, wheat flour middlings, 60% h. g. meat scraps, 65% fish meal (vacuum process), dried skim milk, alfalfa leaf meal, calcium carbonate, salt, cod liver oil.

Blue Seal "20" Dairy Ration
Old process linseed oil meal, soy bean oil meal, ground oats, malt sprouts, corn oil meal, gluten feed, choice cottonseed meal, hominy feed, wheat bran, corn distillers' grains, dried brewers' grains, P. R. cane molasses, B. S. mineral mixture (white fish meal, edible bone meal, calcium carbonate, dicalcium phosphate, potassium iodide and salt).

Blue Seal "18" Dairy Ration
Fancy crimped oats, fancy ground oats, linseed oil meal (pea sized), soy bean oil meal (pea sized), rolled barley, hominy feed, wheat bran, corn oil meal, wheat middlings, P. R. cane molasses, B. S. mineral mixture (white fish meal, edible bone meal, calcium carbonate, dicalcium phosphate, potassium iodide and salt).

Blue Seal Egg Mash
Yellow corn meal, fine ground heavy oats, pure wheat bran, pure wheat middlings, h. g. meat scraps, dried skim milk, alfalfa leaf meal, P. R. cane molasses, gluten meal, calcium carbonate, salt, cod liver oil, 55% fish meal.

Blue Seal Fleshing Pellets
Yellow corn meal, corn oil meal, ground oat groats, fine ground oats, pure wheat middlings, soy bean oil meal, h. g. meat scraps, dried skim milk, P. R. cane molasses, calcium carbonate, salt, cod liver oil.

Blue Seal Growing Mash
Dried skim milk, h. g. meat scraps, 55% codfish meal, alfalfa leaf meal, corn gluten meal, No. 2 yellow corn meal, pure wheat bran, wheat flour middlings, fine ground heavy oats, ground barley, P. R. cane molasses, calcium carbonate, salt, cod liver oil.

Blue Seal "Hom-Mix" 24% Dairy Ration
Choice cottonseed meal, soy bean oil meal, corn oil meal, malt sprouts, corn gluten meal, oat feed, wheat bran, hominy feed, peanut skins, germs, and meal, linseed oil meal, dried brewers' grains, P. R. cane molasses, B. S. mineral mixture (white fish meal, edible bone meal, calcium carbonate, dicalcium phosphate, potassium iodide and salt).

Blue Seal Improved All-Mash Ration
Coarse ground No. 2 yellow corn, ground fancy wheat, fine ground heavy oats, pure wheat bran, wheat flour middlings, h. g. meat scraps, 55% codfish meal, dried skim milk, alfalfa leaf meal, P. R. cane molasses, calcium carbonate, salt, cod liver oil.

Blue Seal Improved Balanced Ration
Old process linseed oil meal, soy bean oil meal, ground oats, malt sprouts, corn gluten meal, choice cottonseed meal, hominy feed, wheat bran, corn distillers' grains, dried brewers' grains, corn oil meal, P. R. cane molasses, B. S. mineral mixture (white fish meal, edible bone meal, calcium carbonate, dicalcium phosphate, potassium iodide and salt).

Blue Seal Laying Mash
No. 2 yellow corn meal, pure wheat bran, fine ground heavy oats, h. g. meat scraps, corn gluten meal, wheat flour middlings, ground barley, ground fancy wheat, P. R. cane molasses, alfalfa leaf meal, dried skim milk, 55% codfish meal, salt, calcium carbonate, cod liver oil.

Blue Seal Special 20% Dairy Ration
Choice cottonseed meal, soy bean oil meal, corn oil meal, malt sprouts, gluten feed, oat feed, wheat bran, hominy feed, peanut skins, germs, and meal, linseed oil meal, dried brewers' grains, corn distillers' grains, P. R. cane molasses, B. S. mineral mixture (white fish meal, edible bone meal, calcium carbonate, dicalcium phosphate, potassium iodide and salt).

Est. M. G. Williams

Williams' Balanced Ration
Corn meal or hominy, linseed oil meal, cottonseed meal, ground oats, gluten feed, dried brewers' grains, wheat feed, soy bean meal, calcium carbonate and 1% salt.

Williams' Chick Starter
Corn meal, bran, middlings, feeding oatmeal, meat scraps, fish meal, leaf meal, dried whey or dried skim milk, calcium carbonate, salt and cod liver oil.

Williams' Growing Mash
Corn meal, bran, soy bean meal, ground oats, dried skim milk or dried whey, leaf meal, fish meal, meat scraps, calcium carbonate, salt and cod liver oil.

Williams' Laying Mash
Corn meal, bran, middlings, ground oats, meat scraps, fish meal, leaf meal, dried skim milk, or dried whey, calcium carbonate, salt and cod liver oil.

Stanley Wood Grain Co.

Bliss Dairy Ration
Corn meal (or hominy), cottonseed meal, wheat bran, soybean meal, linseed meal, wheat middlings, gluten meal, gluten feed, table salt, edible bonemeal, calcium carbonate, (beet pulp).

Preferred Complete Growing Ration
Cod liver oil, dried skim milk, dried whey, Lactoflavin concentrate, dried fish meal, whole oat groats, meat scraps, alfalfa leaf meal, yellow corn meal, soybean oil meal, ground wheat, corn gluten feed, ground barley, wheat bran, wheat middlings, feeding oatmeal, calcium carbonate, salt.

Preferred Complete Laying Mash
Cod liver oil, dried whey, soybean oil meal, Lactoflavin concentrate, dried skim milk, dried fish meal, whole oat groats, meat scraps, alfalfa leaf meal, yellow corn meal, ground wheat, pulverized oats, wheat bran, wheat middlings, calcium carbonate, table salt, cod liver oil.

Preferred Laying Mash
Dried skim milk, dried whey, Lactoflavin concentrate, fish meal, meat scraps, alfalfa leaf meal, wheat bran, yellow corn meal, soybean meal, pulverized oats, feeding oatmeal, wheat middlings, salt, calcium carbonate, cod liver oil.

Woods Dairy Ration
Cottonseed meal, wheat middlings, yellow corn meal (or hominy), soybean meal, ground oats, old process linseed oil meal, corn gluten feed, dried beet pulp, wheat bran, salt, calcium carbonate.

Worcester Grain & Coal Co.

Just Right Growing Mash
Flour middlings, corn meal, wheat bran, feeding oat meal, dried skimmilk, alfalfa leaf meal, fish meal, meat scraps, oyster shell meal, salt, calcium phosphate, cod liver oil.

Just Right Laying-Mash
Dried skimmilk, corn meal, flour middlings, standard bran, meat scraps, ground oats, fish meal, alfalfa leaf meal, soy bean meal, oyster shell meal, 1% salt, 1% calcium carbonate, cod liver oil.

Average Analyses of Unmixed By-Products

(Collected between September 1, 1937, and April 1, 1938)

	Number of Samples	Water (Percent)	Protein (Percent)	Fat (Percent)	Nitrogen Free Extract (Percent)	Fiber (Percent)	Ash (Percent)
Cottonseed Meal	32	8.2	40.9	6.6	27.9	10.3	6.1
Linseed Meal	15	10.0	34.7	5.7	36.0	7.8	5.8
Soy Bean Meal	15	10.6	42.9	4.8	30.3	5.2	6.2
Gluten Meal	8	10.1	44.0	2.7	39.5	2.5	1.2
Gluten Feed	11	13.1	25.9	2.0	45.6	6.9	6.5
Distillers Dried Grains	14	7.6	28.6	9.1	40.9	11.1	2.7
Brewers Dried Grains	11	7.4	26.2	6.3	41.4	15.2	3.5
Wheat Standard Middlings	17	12.4	17.1	4.5	54.3	7.0	4.7
Wheat Flour Middlings	7	11.6	16.3	4.1	59.2	5.1	3.7
Red Dog Flour	11	12.1	16.1	3.3	64.4	2.0	2.1
Wheat Mixed Feed	36	12.6	16.6	4.1	55.6	6.4	4.7
Wheat Bran	51	12.9	16.0	4.1	52.0	9.1	5.9
Corn Meal	25	15.1	9.1	4.3	68.1	1.9	1.5
Ground Oats	40	11.0	12.8	4.0	58.5	10.2	3.5
Hominy Feed	19	11.2	11.3	7.5	62.8	4.4	2.8
Dried Beet Pulp	5	11.3	9.3	0.6	55.7	20.2	2.9
Oat Feed	4	8.2	6.3	2.0	50.5	26.9	6.1

Vitamin A Content of Alfalfa Products Found in the Massachusetts Markets

During the past season Vitamin A determinations were made on 22 samples of alfalfa and alfalfa products by accepted laboratory methods.* These samples were secured from retail dealers' stocks in various parts of the state. The most striking thing about them is their extreme variation. If alfalfa is used primarily on account of its Vitamin A potency, more attention should be paid to securing a product which through proper curing and storage contains a liberal amount. Many reputable manufacturers of prepared rations reject for their use alfalfa which does not meet standards in Vitamin A content which they set up. It is not unreasonable to expect that some of this rejected material finds its way into retail channels where facilities are not at hand for checking its quality.

In the table which follows, the source of the material is not indicated as it is entirely possible to produce a high class product which through improper storage after it leaves the manufacturer's plant would be subject to rapid deterioration. All that is attempted is to show the wide variation of alfalfa products as they are retailed locally.

Vitamin A Content of Alfalfa Products Found in the Massachusetts Markets

Alfalfa Meal		Alfalfa Leaf Meal		Alfalfa Stem Meal	
Lab. No.	International Units per Gram	Lab. No.	International Units per Gram	Lab. No.	International Units per Gram
1081	106.8	883	192.0	1386	50.0
1172	40.0	1102	295.0	1581	63.6
1259	66.6	1180	404.0	1585	82.5
1267	66.6	1183	500.0		
1532	33.3	1184	317.5		
1579	128.1	1185	476.1		
1580	54.3	1186	526.3		
8308	23.3	1189	202.0		
		1217	122.0		
		1582	303.0		
		1584	110.8		

Alfalfa (artificially dried)
Mount Hope Farm, Williamstown

Second cutting	460.0
Fourth cutting	505.0
Fifth cutting	740.6
Cutting not known	606.0

*Tests made by Carl F. Dunker, graduate assistant in Nutrition Laboratory

Manganese in Feeds*

Recent experimental evidence points to the fact that manganese deficiency may be one of the contributing factors in causing slipped tendons (perosis) in growing chicks. Many commercial rations now contain added manganese sulphate in small amounts. With the idea of presenting information as to the normal manganese content of feed products and commercial mixtures, a large number of manganese determinations were made on samples of feeding stuffs collected in the course of inspection. None of the commercial mixtures, so far as could be ascertained, contained added manganese sulphate. Samples reported were all collected before the use of manganese sulphate had become general. No recommendations are made as to the maximum or minimum amount that a feed should contain: that should be left to the nutrition expert. The use of manganese sulphate in home mixed rations in the small amounts advocated necessitates very thorough mixing in order to insure uniform distribution throughout the entire mixture.

Manganese Content of Feeding Stuffs

(Composite samples of 10 unless otherwise indicated)

	Parts per Million
Alfalfa Products	
Alfalfa Meal (9 samples)	24.5
Alfalfa Leaf Meal	43.5
Animal and Fish Products	
Steamed Bone Meal	16.5
Fish Meal	14.5
Liver Meal, Argentine (1 sample)	5.9
Meat Scrap, 50% Protein	8.5
Dried Skim Milk (7 samples)	Less than 1
Brewers and Distillers By-Products	
Dried Brewers Grains (3 samples)	39.0
Corn Distillers Grains (4 samples)	16.0
Cereal Meals	
Corn Meal	5.8
Ground Oats	36.5
Corn Products	
Gluten Meal (5 samples)	7.2
Gluten Feed	33.5
Hominy Feed	10.5
Miscellaneous Mill Residues	
Dried Beet Pulp (5 samples)	29.0
Oat Feed, Oatmeal Mill By-product (5 samples)	46.5
Oil Cake Meals	
Cottonseed Meal	22.5
Linseed Meal	48.0
Soy Bean Meal	31.5
Wheat Products	
Wheat Red Dog Flour	58.0
Wheat Standard Middlings	97.0
Wheat Mixed Feed	101.0
Wheat Bran	112.5

Manganese Content of Commercial Poultry Mixtures
Manganese Sulphate Not Added

	Number of Samples	Manganese Parts per Million		
		Average	Highest	Lowest
Laying Mashes	88	50	73	35
Growing and Starting Feeds	68	48	76	35
Fattening Feeds	12	41	51	31

*Analyses by John W. Kuzmeski.

Directory of Manufacturers Who Registered Feeding Stuffs for Sale in Massachusetts in 1938

Acme-Evans Co., Indianapolis, Ind.
Albers Bros. Milling Co., Seattle, Washington.
E. T. Allen Co., Atlanta, Ga.
Allied Mills, Inc., Chicago, Ill.
American Maize Products Co., 100 East 42nd St., New York, N. Y.
A. P. Ames Co., 10 Walnut St., Peabody, Mass.
Arcady Farms Milling Co., 223 West Jackson Blvd., Chicago, Ill
Archer-Daniels-Midland Co., Minneapolis, Minn.
Ashcraft-Wilkinson Co., Atlanta, Ga. (Registered also for Kuder Meal Co.)
Atkinson Milling Co., 900 Flour Exchange, Minneapolis, Minn.
W. E. Atkinson Co., 27 Water St., Newburyport, Mass.
Atlantic Fish By-Products Co., Phoenix Ave., Lowell, Mass. (Registered also for Wilmington Packing Co.)
B. & B. Dairy Co., Inc., Margaretville, N. Y.
E. W. Bailey & Co., Montpelier, Vt.
H. J. Baker & Bro., 271 Madison Ave., New York, N. Y.
Barber & Bennett, Inc., Albany, N. Y.
Bartlett Frazier Co., 406 Merchants Exchange Bldg., St. Louis, Mo.
Bay State Milling Co., Winona, Minn.
Beacon Milling Co., Inc., Cayuga, N. Y.
Berkshire Coal & Grain Co., Inc., North Adams, Mass.
Albert Bieren, Lexington, Mass.
Bisbee Linseed Co., Inc., Amsterdam, N. Y.
Bisbee Linseed Co., 2100 Lincoln Liberty Bldg., Philadelphia, Penn.
Blatchford Calf Meal Co., Waukegan, Ill.
Borden Co., 350 Madison Ave., New York, N. Y.
Borden Grain Co., 26 Granite St., Taunton, Mass.
C. W. Brister & Son, Auburn, N. Y.
A. H. Brown & Bros., Boston, Mass. (Registered by Mellin's Food Company of North America.)
George B. Brown Corp., Ipswich, Mass.
C. W. Burckhalter, Inc., 177 Franklin St., New York, N. Y.
Burrus Mill & Elevator Co., Fort Worth, Texas.
Butman Feed Co., Lynn, Mass.
A. B. Caple Co., Toledo, Ohio.
Center Milk Products Co., Middlebury Center, Penn.
Central Soya Co., Inc., Fort Wayne, Ind.
Chapin & Co., Hammond, Ind.
Checkerboard Elevator Co., St. Louis, Mo.
Checkerboard Feed Store, Oswego, N. Y.
Clinton Co., Clinton, Iowa.
Coles Feed & Grain Co., Middletown, Conn.
Collis Products Co., St. Paul, Minn.
Commander-Larabee Milling Co., Minneapolis, Minn.
Community Feed Stores, Inc., South Deerfield, Mass.
Consolidated Chemical Industries, Inc., Woburn, Mass.
Consolidated Rendering Co., 178 Atlantic Ave., Boston, Mass.
Corn Products Refining Co., 17 Battery Place, New York. N. Y.
Nicolas Courcy Grain Co., 12 Waverly St., Taunton, Mass.
Cover & Palm Co., 150 Middle St., Lowell, Mass.
Chas. M. Cox Co., 177 Milk St., Boston, Mass.
Dairymen's League Co-Operative Association, Inc., 11 West 42nd St., New York, N. Y.
Dawe's Vitamelk Co., Chicago, Ill.
Decatur Milling Co., Inc., Decatur, Ill.
Dehydrating Process Co., Boston, Mass.
Delaware Mills, Inc., Deposit, N. Y. (Registered also for Squier & Co.)
Denver Alfalfa Milling & Products Co., Lamar, Col.
Frank Diauto, 87 Warren St., Randolph, Mass.
F. Diehl & Son, Inc., Wellesley, Mass.
Dietrich & Gambrill, Inc., Frederick, Md.
Dreyer Commission Co., 300 Merchants Exchange, St. Louis, Mo.
J. L. Dunnell & Son, Bernardston, Mass.
Eagle Roller Mill Co., New Ulm, Minn.
East Bridgewater Farmers' Cooperative Exchange, Inc., East Bridgewater, Mass.
Eastern Grain Co., Bridgewater, Mass.
Eastern States Farmers' Exchange, Springfield, Mass.
Economy Grocery Stores, Corp., 393 D Street, Boston, Mass.
Egg-O-Milk Co., Baltimore, Md. (Registered by P. Fred'k Obrecht & Son.)
Michael W. Ellis, 19 Walnut St., Peabody, Mass.
Elmore Milling Co., Inc., Oneonta, N. Y.
John W. Eshelman & Sons, Lancaster, Penn.
Evans Milling Co., Indianapolis, Ind.
Excelsior Milling Co., Minneapolis, Minn.
Fant Milling Co., Sherman, Texas.
Farm Service Co., Fitchburg, Mass.
Farmers Feed Co., Buffalo, N. Y.
Farmers Feed Co., 532 East 76th St., New York, N. Y.
Federal Mill, Inc., Lockport, N. Y.
Fernando Valley Milling & Supply Co., 6104 Van Nuys Blvd., Van Nuys, Cal.
Ferneau Grain Co., Blanchester, Ohio.
Finger Lakes & Hudson Flour Mills, Inc., Geneva, N. Y.
Fingerlakes & Hudson Flour Mills, Inc., 7 Madison St., Troy, N. Y.
First National Stores, Inc., 5 Middlesex Ave., Somerville, Mass.
Flory Milling Co., Inc., Bangor, Penn.
Fred A. Fountain, Inc., Taunton, Mass.
Dean S. French, 17 Columbia St., Stoughton, Mass.

Fruen Milling Co., Minneapolis, Minn.
Paul Fuller & Sons, 8 Mooney Ave., Salem, Mass.
Funk Bros. Seed Co., Bloomington, Ill.
J. B. Garland & Son, Inc., Worcester, Mass.
General Foods Corp., Battle Creek, Mich.
General Mills, Inc., Minneapolis, Minn.
W. K. Gilmore & Sons, Inc., Walpole, Mass.
Glenmore Distilleries Co., Inc., Owensboro, Ky.
Glidden Co., 5165 West Moffat St., Chicago, Ill.
Gold Medal Farms, Inc., 1157 East 156th St., New York, N. Y.
John R. Golter, Portsmouth, N. H.
Goode Grain Co., 452 Broadway, Lowell, Mass.
Gorton-Pew Fisheries Co., Ltd., Gloucester, Mass.
Grand Isle County Cooperative Creamery Assn., Inc., Grand Isle, Vt.
Grand Union Co., 233 Broadway, New York, N. Y.
D. H. Grandin Milling Co., Jamestown, N. Y.
Great Atlantic & Pacific Tea Co., New York, N. Y.
Green Acre Farms, Nazareth, Penn.
Gwinn Milling Co., Columbus, Ohio.
Hales & Hunter Co., 166 West Jackson Blvd., Chicago, Ill.
Wm. Hamilton & Son, Inc., Caledonia, N. Y.
Dieudonne Harbeck, 405 Earl St., New Bedford, Mass.
Hecker H-O Division of Hecker Products Corp., Buffalo, N. Y.
Hecker-Jones-Jewell Milling Division of Standard Milling Co., 503 Seneca St., Buffalo, N. Y.
Hercules Powder Co., Dairy Products Division, 228 North LaSalle St., Chicago, Ill.
D. B. Hodgkins' Sons, Gloucester, Mass.
Horvitz Grain Co., 742 Acushnet Ave., New Bedford, Mass.
Houston Milling Co., Houston, Texas.
R. B. Howlett, Amherst, Mass.
Hubinger Co., Keokuk, Iowa.
Humphreys-Godwin Co., Memphis, Tenn.
Igleheart Brothers, Inc., Evansville, Ind.
Illinois Cereal Mills, Inc., Paris, Ill.
Independent Tallow Co., Inc., 39 Cedar St., Woburn, Mass.
International Milling Co., Minneapolis, Minn.
Ismert-Hincke Milling Co., Kansas City, Kan.
Jaquith & Co., 305 Main St., Woburn, Mass.
Joslin-Schmidt Corp., Lockland Station, Cincinnati, Ohio.
Kansas Flour Mills Corp., Kansas City, Mo.
Kasco Mills, Inc., Waverly, N. Y.
Kellogg Co., Battle Creek, Mich.
Spencer Kellogg & Sons, Inc., 98 Delaware Ave., Buffalo, N. Y.
Keystone Dairy Co., 150 Nassau St., New York, N. Y.
H. H. King Flour Mills Co., Minneapolis, Minn.
King Midas Flour Mills, 522 Flour Exchange, Minneapolis, Minn.
Kraft-Phenix Cheese Corp., 400 Rush St., Chicago, Ill.
Chas. A. Krause Milling Co., Milwaukee, Wis.
Kuder Meal Co., San Antonio, Texas. (Registered by Ashcraft-Wilkinson Co.)
Larabee Flour Mills Co., Kansas City, Mo.
Larrowe Milling Co., Division of General Mills, Inc., Detroit, Mich.
John T. Lewis & Bros. Co., 910 Widener Bldg., Philadelphia, Penn.
L. B. Lovitt & Co., Memphis, Tenn.
Maine Fish Meal Co., Portland, Maine.
Mansfield Coal & Grain Co., Mansfield, Mass.
Mansfield Milling Co., 1 Samoset Ave., Mansfield, Mass.
Maritime Milling Co., Inc., Buffalo, N. Y.
Meadow Brook Farms, Nazareth, Penn.
Mellin's Food Company of North America, 41 Central Wharf, Boston, Mass. (Registered for A. H. Brown & Bros.)
Merrimack Farmers' Exchange, Inc., Concord, N. H.
Middlesex County Farm Bureau Assn., 131 Lexington St., Waltham, Mass.
Midland Flour Milling Co., Kansas City, Mo.
Miner-Hillard Milling Co., Wilkes-Barre, Penn.
Mississippi Valley Grain & Feed Co., Muscatine, Iowa.
Geo. Q. Moon & Co., Inc., Binghamton, N. Y.
Jas. F. Morse & Co., 11 Horace St., Somerville, Mass.
National Biscuit Co., Shredded Wheat Bakeries, Niagara Falls, N. Y.
New England Dairies, Inc., 142 Cambridge St., Charlestown, Mass.
New England Rendering Co., Brighton, Mass.
New England Retail Grain Dealers Cooperative Association, Inc., Springfield, Mass.
North East Feed Mill Co., Minneapolis, Minn.
Northern Milk Corp., Adams, N. Y.
Northwestern Consolidated Milling Division of Standard Milling Co., Minneapolis, Minn.
P. Fred'k Obrecht & Son, 423 West Pratt St., Baltimore, Md. (Registered for Egg-O-Milk Co.)
Ogden Grain Co., Utica, N. Y.
Old Fort Mills Inc , Marion, Ohio.
Park & Pollard Co., Inc., 356 Hertel Ave., Buffalo, N. Y.
George H. Parker Grain Co., Danvers, Mass.
Patent Cereals Co., Geneva, N. Y.
Pecos Valley Alfalfa Mill Co., Hagerman, N. M.
Penick & Ford Ltd., Inc., Cedar Rapids, Iowa.
Perkins Oil Co., Memphis, Tenn.
Phaneuf & Son, 188 Rivet St., New Bedford, Mass.
Phenix Flour Mills, Davenport, Iowa.
Pillsbury Flour Mills Co., Minneapolis, Minn.
Maurice Pincoffs Co., 1 Main St., Houston, Texas.
Pittsburgh Plate Glass Co., Linseed Oil Division, Newark, N. J.
W. N. Potter Grain Stores, Inc., Greenfield, Mass.
H. C. Puffer Co., Springfield, Mass.
Quaker Oats Co., 141 West Jackson Blvd., Chicago, Ill.

Ralston Purina Co., St. Louis, Mo.
John Reardon & Sons Co., Cambridge, Mass.
Rice Laboratories, Inc., Dassel, Minn.
D. F. Riley, North Hatfield, Mass.
Rodney Milling Co., Kansas City, Mo.
Edward Roy, R.F.D., Attleboro, Mass.
N. Roy & Son, Rear 618 Newport Ave., South Attleboro, Mass.
H. M. Rubin Co., Inc., 9-19 38th Ave., Long Island City, N. Y.
Russell-Miller Milling Co., Minneapolis, Minn.
Ryther & Warren, Belchertown, Mass.
St. Albans Grain Co., St. Albans, Vt. (Registered also for Taft Bros.)
St. Lawrence Flour Mills Co., Ltd., 2110 Notre Dame St. West, Montreal, Canada.
Schenley Products Co., Inc., 350 Fifth Ave., New York, N. Y.
Joseph E. Seagram & Sons, Inc., Louisville, Ky.
Shellabarger Grain Products Co., Decatur, Ill.
Sherwin Williams Co., 101 Prospect Ave., N. W., Cleveland, Ohio.
Mrs. Annie P. Smith, 102 Hale St., Haverhill, Mass.
Smith-Bodfish-Swift Co., Vineyard Haven, Mass.
Southern Cotton Oil Co., Goldsboro, N. C.
Southwestern Milling Division of Standard Milling Co., Kansas City, Mo.
Squier & Co., Monson, Mass. (Registered by Delaware Mills, Inc.)
A. E. Staley Manufacturing Co., Decatur, Ill.
David Stott Flour Mills, Inc., 4895 Grand River Ave., Detroit, Mich.
Stoughton Grain Co., Stoughton, Mass.
Stratton & Co., Concord, N. H.
Swift & Co., Union Stock Yards, Chicago, Ill.
Swift & Company Oil Mills, Atlanta, Ga.
Swift & Co. (Soy Bean Mill), Champaign, Ill.
C. H. Symmes & Co., Winchester, Mass.
Taft Bros., Uxbridge, Mass. (Registered by St. Albans Grain Co.)
Texas Star Flour Mills, Galveston, Texas.
Tioga Mills, Inc., Waverly, N. Y.
Jacob Trinley & Sons, Linfield, Penn.
Union Starch & Refining Co., Columbus, Ind.
United Cooperative Farmers, Inc., Fitchburg, Mass.
United Farmers Cooperative Creamery Assn., Inc., Charlestown, Mass.
Unity Feeds, Inc., 177 Milk St., Boston, Mass.
George Urban Milling Co., 332 North Oak St., Buffalo, N. Y.
Van Iderstine Co., Long Island City, N. Y.
Van Vechten Milling Corp., 196 Smith St., Rochester, N. Y.
Arthur Ventura Grain Co., 7 Purchase St., Taunton, Mass.
Victor Flour Mills, Inc., Pittsford, N. Y.
Vitality Mills, Inc., Board of Trade Bldg., Chicago, Ill.
Hiram Walker & Sons, Inc., Foot of Edmund St., Peoria, Ill.
Ward Dry Milk Co., St. Paul, Minn.
C. [illegible] P. Washburn Co., Middleboro, Mass.
Wayne County Grangers Feed Corp., Clyde, N. Y.
H. K. Webster Co., Lawrence, Mass.
Western Condensing Co., Petaluma, Cal.
Wilber Feed Co., Inc., Jamestown, N. Y.
Est. M. G. Williams, Taunton, Mass.
Wilmington Packing Co., New Boston St., Woburn, Mass. (Registered by Atlantic Fish By-Products Co.)
Wilson & Co., 41st St. and South Ashland Ave., Chicago, Ill.
Stanley Wood Grain Co., Taunton, Mass.
Worcester Grain & Coal Co., Worcester, Mass.

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Inspection of Commercial Fertilizers

By H. D. Haskins

This is the sixty-fifth report of the Massachusetts Fertilizer Control made in accordance with Chapter 94, Sections 250 to 261, inclusive, of Massachusetts General Laws 1920, as amended by Chapter 67, Acts of 1933.

Massachusetts State College
Amherst, Mass.

INSPECTION OF COMMERCIAL FERTILIZERS FOR THE SEASON OF 1938

By H. D. Haskins, Official Chemist[1]

CONTENTS

MANUFACTURERS AND BRANDS

Registrations have been perfected in Massachusetts during 1938 by 97 firms, covering 533 brands of mixed fertilizer and unmixed fertilizing materials. The nature of these products is shown by the following classification:

Complete fertilizers	337
Ammoniated superphosphates	3
Superphosphates with potash	3
Dry ground fish, tankage and ground bone	48
Fertilizer simples, including organic nitrogen compounds	96
Tobacco stems	1
Pulverized manures	30
Cotton hull ashes and wood ashes	7
Peat products	2
Stone meal	1
Nitrate of potash	5
Total	533

[1] Assisted by H. Robert DeRose, John W. Kuzmeski, Albert F. Spelman, Stuart P. Stiles, Chemists; James T. Howard, C. L. Whiting, G. E. Taylor, Sampling Agents; Harry L. Allen, Laboratory Assistant; Cora B. Grover, Clerk.

The following brands were not found on display by the sampling agents at any point in the state and therefore do not appear in the tables of analyses.

Brands of Fertilizer Registered but Not Sampled

Apothecaries Hall Co.
Liberty High Grade Market Garden (with Sulphate Potash) 5–8–7
Liberty Onion Special (Potash as Sulphate) 4–8–7
Liberty Onion Special (Potash as Sulphate) Extra Organic 4–8–7
Liberty Tobacco Fertilizer 6–3–6
Cal Nitro (20.5–0–0)
Linseed Meal, Archer-Daniels-Midland (5–0–0)
Linseed Meal, National Lead Co.

Armour Fertilizer Works
Fish (9.46–5–0)

Bisbee Linseed Co., Inc.
"K & M" Brand 32% Protein Old Process Linseed Meal (5–0–0)

Central Soya Co., Inc.
Central Star Brand Soybean Oilmeal (7.04–0–0)

Consolidated Rendering Co.
Corenco 4–8–10–1 Made with Water Soluble Magnesium

Flower City Plant Food Co., Inc.
Wondergro (Tablet Form) 10–12–11

Humphreys-Godwin Co.
Bull Brand Cottonseed Meal (6.87–0–0)

Spencer Kellogg & Sons, Inc.
Castor Pomace (4.52–0–0)
Kellogg's 32% Protein Old Process Linseed Meal (5.12–0–0)

Old Deerfield Fertilizer Co., Inc.
Alsop Supplement No. 1 5–1–16
Soy Bean Meal 41% Protein (6.56–0–0)

Rogers & Hubbard Co.
Linseed Meal (5.12–0–0)
Nitrate of Potash (13–0–44)

Synthetic Nitrogen Products Corp.
Urea (46–0–0)

Drawing of Samples

Between April 1 and June 15, three sampling agents made a thorough canvass of the state: James T. Howard in Hampshire, Hampden, Franklin and Berkshire Counties; G. E. Taylor in Norfolk, Bristol, Plymouth, Barnstable and Dukes Counties; and C. L. Whiting in Essex, Middlesex, Suffolk and Worcester Counties. They visited 187 towns, took 1,793 samples, representing 514 brands, from stock in the possession of 516 agents or owners, and called upon 230 agents where no samples were drawn because the agency had been discontinued, the stock was all sold out, or sufficient samples had already been taken of the brands found. They sampled 23,142 sacks, representing 18,153 tons of fertilizer. One ton was sampled to every three and four-fifths tons sold in the state.

COMPARATIVE COST OF FERTILIZER CHEMICALS AND UNMIXED FERTILIZER PRODUCTS

Of the mineral forms of nitrogen, ammonium sulfate held firm at $29.00 through June. In July it dropped to $26.50 and has since that date advanced gradually, the average for September 1938 being $27.00. Sodium nitrate and calcium nitrate have shown a uniform price of $28.30 and $28.00, respectively, from March 1 to October 1. Potassium nitrate held firm at $57.50 through March, April and May, followed by a decline to $55.00 which was maintained through July, August and September. Synthetic urea and calcium cyanamid have been quoted uniformly at $95.00 and $24.15 for the seven months following March 1. Among the animal ammoniates, dried blood has shown the usual fluctuations, declining from $48.80 in March to $41.20 in June. During July and August it advanced to $47.52, and declined again in September to an average of $44.38. Tankage, hoof meal and dry ground fish have shown fluctuations similar to dried blood.

Of the organic vegetable ammoniates, 41% protein cottonseed meal (6.56% nitrogen) has been quoted at an average price of $23.38 for the period March 1 to October 1. The average quotation for castor pomace during the same period was $19.36.

Wholesale Quotations on Chemicals and Unmixed Materials.

Nature of Material.	Average Price Per Ton For Six Months Preceding March 1.		Price Per Ton Oct. 3, 1938.	Difference Between Oct. 3 Price and Six Months' Average: Sept. 1, 1937–Mar. 1, 1938.
	1937.	1938.		
Ammonia sulfate (20.5% N), bulk, f.o.b. ports or ovens	$24.86	$27.96	$26.25	—$1.71
Nitrate of soda (16%), bags, ports	27.33	29.00	29.00	none
Nitrate of lime (15% N), bags, northern ports, ex vessel	26.26	27.27	28.00	+.73
Nitrate of potash (13% N, 44% K_2O), bags, c.i.f. ports	52.70	57.50	55.00	—2.50
Urea (46% N), car lots, bags, f.o.b. Atlantic port	95.00	95.00	95.00	none
Cyanamid (21–22% N), bags, delivered	26.65	24.15	24.15	none
Dried blood (13.16% N), bags, f.o.b. New York	65.27	51.38	48.00	—3.38
Hoof meal (14.15% N), f.o.b. Chicago, bulk	50.93	56.52	43.00	—13.52
Animal tankage (8.23% N, 6.86% P_2O_5), ground, bulk New York	42.05	32.05	29.00	—3.05
Dry ground fish (9.02% N, 6.86% P_2O_5), bags, Baltimore	51.62	52.84	48.00	—4.84
Cottonseed meal (6.56% N), bags, Memphis exch.	31.37	22.40	21.50	—.90
Castor pomace (4.52% N), bags, car lots, f.o.b. works	19.50	21.46	18.50	—2.96
Ground bone (2.47% N, 22.88% P_2O_5), bags, f.o.b. Chicago	20.30	23.15	24.00	+.85
Superphosphate (16% avail. P_2O_5), bulk, f.o.b. Baltimore	8.09	9.00	8.00	—1.00
Muriate of potash (50.54% K_2O), bulk, c.i.f. ports	25.00	26.75	26.75	none
High grade sulfate of potash (48.65% K_2O), bags, c.i.f. ports	36.25	38.00	38.00	none
Potash-magnesia sulfate (25.94% K_2O), bags	24.75	25.75	25.75	none
Cotton hull ashes (25% K_2O), bulk, delivered, car lots	25.00	26.25	27.50	+1.25

Note: A domestic synthetic urea product containing 42% nitrogen has been sold in Massachusetts by E. I. du Pont de Nemours & Co. at a price permitting its retail for about $72.00 per ton

Fertilizer Trade Values.

Form of Plant Food.	Value per Pound.	Unit Value.
Nitrogen.		
In ammonia salts	$0.089	$1.78
In nitrates	.10	2.00
Organic nitrogen in fish	.322	6.44
Organic nitrogen in blood, meat and hoof meal	.25	5.00
Organic nitrogen in fine[1] bone and tankage	.265	5.30
Organic nitrogen in coarse[1] bone and tankage and in pulverized manures	.19	3.80
Organic nitrogen in mixed fertilizers	.225	4.50
Organic nitrogen in cottonseed meal, castor pomace, linseed meal, etc.	.225	4.50
Organic nitrogen in urea	.0905	1.81
Organic nitrogen in cyanamid	.07	1.40
Phosphoric Acid.		
Available (soluble in water and neutral citrate of ammonia)	.05	1.00
In precipitated bone	.017	.94
In basic slag phosphate	.08	1.60
In fine[1] bone and tankage, and in fish	.0375	.75
In coarse[1] bone and tankage	.0325	.65
In pulverized manures, seed residues, and ashes	.0325	.65
Insoluble in neutral citrate of ammonia in mixed fertilizers	.017	.34
Potash.		
As sulfate	.049	.98
As muriate	.038	.76
As carbonate	.07	1.40
As nitrate	.0465	.93
In potash-magnesia sulfate	.066	1.32
In cotton hull and wood ashes (soluble)	.069	1.38
In organic vegetable compounds, sheep manure, insoluble in ashes	.04	.80
Magnesium Oxide.		
Water soluble from Kieserite, Emjeo, sulfate of potash-magnesia	.0633	1.27
In form of finely ground dolomite	.00625	.125

[1] Fine bone and tankage refers to particles which, as sampled, will pass through a sieve with circular openings 1/50 of an inch in diameter. Coarse bone and tankage refers to that portion which will not pass through the sieve.

Superphosphate 16% was quoted at an average price of $9.00 during March, declining in April to $8.50 where it was maintained during May and June. During July, August and September it was quoted at an average price of $8.00 per ton, f.o.b. Baltimore. Ground bone showed a decline from $18.75 in March to $17.00 in June. During the three months following, it advanced to $23.25.

None of the potash sales have shown any fluctuation in quotation since March 1, average quotations being as follows: for 50% muriate of potash, $26.75; for high grade sulfate of potash, $38.00; for sulfate of potash-magnesia, $25.75; for cotton hull ashes on the basis of 25% K_2O, $27.50.

From this summary, and assuming that labor conditions will remain normal, there seems to be but little justification for an advance in the price of mixed commercial fertilizers for 1939.

The fertilizer trade values are based on average wholesale quotations of fertilizer chemicals and unmixed materials, as taken from trade journals for six months ending March 1, 1938, to which 20 percent has been added for overhead. When appropriate, an additional allowance has also been made for bags, labor, and transportation.

FERTILIZER TONNAGE

Tonnage of Mixed and Unmixed Fertilizers Sold in Massachusetts

	July 1, 1935, to July 1, 1936	July 1, 1936, to July 1, 1937	July 1, 1937, to July 1, 1938
Mixed fertilizers	43,682	48,527	45,339
Fertilizer chemicals and materials unmixed	19,165	24,004	22,360
Pulverized natural manures	1,634	1,743	1,176
Totals	64,481	74,274	69,175

There were 5,099 tons less fertilizer sold in the state in 1938 than during the previous year. The tonnage of mixed fertilizer was 3,188 less, and that of the fertilizer chemicals and unmixed materials was 1,644 less than for 1937. Pulverized manures showed a decrease of 267 tons. Of the total tonnage sold, 65.54 percent was mixed fertilizer, 32.32 percent was unmixed materials, and 2.14 percent was dried and pulverized natural manures.

Plant Food Tonnage

	Nitrogen		Phosphoric Acid		Potash	
	1937	1938	1937	1938	1937	1938
Mixed fertilizers	2,548*	2,355*	4,138*	3,796*	3,468*	3,326*
Fertilizer chemicals and materials unmixed	1,579	1,434	2,376	2,015	821	745
Pulverized natural manures	36	32	26	25	44	41
Totals	4,163	3,821	6,540	5,836	4,333	4,112

* Does not include plant food tonnage of fertilizer mixed for special orders.

There were 1,267 less tons of plant food sold in the state than during 1937, of which 342 tons were nitrogen, 704 tons available phosphoric acid, and 221 tons potash.

There were 13,769 tons of plant food sold, of which 28 percent was nitrogen, 42 percent available phosphoric acid, and 30 percent potash. Mixed fertilizers furnished 68.8 percent of the plant food, chemicals and unmixed materials 30.5 percent, and pulverized manures 0.7 percent.

The three plant food elements were furnished in the following proportions by the mixed fertilizers and the unmixed materials, including the pulverized manures; nitrogen, 62 percent from mixed and 38 percent from unmixed; phosphoric acid, 65 percent from mixed and 35 percent from unmixed; potash, 81 percent from mixed and 19 percent from unmixed.

The tables present tonnage figures for one year, July 1, 1937, to July 1, 1938, for both mixed fertilizers and unmixed fertilizer materials. In case of the mixed fertilizers, the grade represents the plant food guarantee and is expressed in the order of nitrogen, available phosphoric acid, potash.

Tonnage of Mixed Fertilizers.

Complete Fertilizers.

14 Per Cent or More of Available Plant Food (Nitrogen, Available Phosphoric Acid and Potash.)

Grade.	Tonnage.	Brands.	Grade.	Tonnage.	Brands.
5-8-7	12,186	34	4-9-3	80	–
4-8-4	6,090	25	8-6-4	77	–
4-8-7	3,123	21	2-8-10	74	–
7-6-6	2,507	12	8-6-6	73	–
4-8-10	2,227	17	6-7-4	72	–
6-3-6	1,943	10	10-5-10	65	–
4-8-8	1,609	6	4-6-10	55	–
8-16-16	1,494	6	7-8-6	55	–
5-8-10	1,303	9	3-12-6	53	–
4-12-4	1,078	7	7-12-10	52	–
3-10-4	827	11	8-4-8	48	–
3-10-6	678	–	7-3-7	47	–
8-16-14	675	13	6-6-4	46	–
6-3-7	663	–	8-5-2	46	–
6-8-6	649	–	7-7-5	44	–
4-10-4	570	6	5-7-3	43	–
5-10-5	547	–	6-12-12	38	–
8-24-8	389	–	8-20-12	32	–
10-6-4	317	6	3-7-6	26	–
5-6-4	303	–	10-3-3	24	–
12-16-12	264	–	6-11-10	24	–
5-10-4	263	–	5-9-8	23	–
8-16-20	241	6	7-7-6	19	–
5-8-12	240	–	8-6-3	19	–
5-4-15	226	–	5-9-2	18	–
4-16-20	204	–	8-8-8	18	–
8-6-2	200	5	5-8-16	15	–
4-12-6	182	–	5-10-7	15	–
5-5-15	175	6	6-8-2	14	–
8-5-8	167	–	5-8-5	11	–
6-6-5	155	–	2-12-2	10	–
9-6-6	134	–	5-8-4	10	–
12-4-4	121	–	6-12-4	10	–
5-5-5	117	–	10-16-14	10	–
4-3-12	115	–	Miscellaneous	71	16
5-10-10	114	–	Special mixtures	945	–
7-5-3	103	–			
7-14-9	103	–	Totals	44,584	321

Less than 14 Per Cent of Available Plant Food (Nitrogen, Available Phosphoric Acid and Potash.)

5-3-5	537	8	4-6-3	12	–
4-3-1	42	–	5-6-2	10	–
3-3-3	18	–	Miscellaneous	4	–
4-2-2	15	–			
			Totals	638	16

Superphosphate with Potash.			Ammoniated Superphosphate.		
0-20-20	86	–	4-10-0	29	–
			4-4-0	2	–
			Totals	31	–

Of the 45,339 tons of complete fertilizer sold, 72 percent was furnished by 9 grades and 140 brands. Double- and multiple-strength grades totaled 3,358 tons and 36 brands, which was 91 tons more than during the previous year. Although the total tonnage of complete fertilizers shows a decrease of 3,188 tons, or 6.6 percent, the double- and multiple-strength grades show an increase of 91 tons, or 2.8 percent. This indicates a continuing trend toward the manufacture of higher grade fertilizers.

Of the mixed fertilizer sold, 98.6 percent contained 14 percent or over of available plant food.

There were 263 tons less of low-analysis (less than 14 percent available plant food) complete fertilizers sold than in 1937. The 5-3-5 grade, comprising 8 brands, furnished 84 percent of the tonnage of this class of goods.

In the following table are listed ten of the most popular grades of mixed fertilizer together with the tonnage of each sold in Massachusetts for the years 1937 and 1938.

1937.		1938.	
Grade.	Tonnage.	Grade.	Tonnage.
5-8-7	14,206	5-8-7	12,186
4-8-4	6,804	4-8-4	6,090
4-8-7	3,214	4-8-7	3,123
7-6-6	2,668	7-6-6	2,507
6-3-6	2,573	4-8-10	2,227
4-8-10	2,330	6-3-6	1,943
4-8-8	1,652	4-8-8	1,609
5-8-10	1,316	8-16-16	1,494
8-16-16	1,160	5-8-10	1,303
4-12-4	1,154	4-12-4	1,078

The following table shows how the tonnage sold in 1938 corresponds with the New England Standard Nine grades selected by the New England Agronomists in 1931.

New England Standard Nine Grades.	Tonnage.	Additional Tonnage from Grades Varying but 1% in One or More Plant Foods.	Total
5-8-7	12,196*a*	7,821*b*	20,017
4-8-4	6,642*c*	59	6,701
6-3-6	2,056*d*	1,200	3,256
7-6-6	2,507	217	2,724
4-8-10	2,468*e*	–	2,468
3-10-4	827	650	1,477
5-8-10	1,303	–	1,303
2-8-10	278*f*	–	278
2-12-4	5	–	5
Totals	28,282	9,947	38,229

a Including 10 tons of 10-16-14.
b Including 1,494 tons of 8-16-16, 675 tons of 8-16-14, and 264 tons of 12-16-12.
c Including 547 tons of 5-10-5 and 5 tons of 15-30-15.
d Including 65 tons of 10-5-10 and 48 tons of 8-4-8.
e Including 241 tons of 8-16-20.
f Including 204 tons of 4-16-20.

Of the total tonnage of mixed fertilizer sold in Massachusetts, 62 percent was from grades recommended by New England Agronomists to meet New England conditions, and 22 percent additional tonnage was from grades varying but one percent in one or more plant food elements from the grades thus recommended.

Of the ten grades, including the multiple-strength mixtures, that have the highest tonnage (33,560 tons), all but four were among the New England Standard Nine. These six grades showed a total tonnage of 26,256.

Over 23 percent of the total tonnage of mixed fertilizer was from five grades not included in the New England Standard Nine. They are 4–8–7, 8–16–14, third largest tonnage sold; 4–8–8, 8–16–16, fourth largest; 4–12–4, 8–24–8, eighth largest; 3–10–6, eleventh largest; and 6–3–7, twelfth largest.

The tonnage of unmixed materials, as shown in the following table, was distributed as follows: nitrogen products, 42 percent; phosphoric acid products, 34 percent; potash products, 5 percent; tankage, fish, bone, nitrate of potash, Ammo-Phos, and wood ashes, 18 percent; and miscellaneous, 1 percent. Pulverized animal manures are not included.

Tonnage of Unmixed Fertilizing Materials.

Material.	Tonnage.	Brands.	Material.	Tonnage.	Brands.
Superphosphate 16%	4,403	11	Dry ground fish	145	11
Cottonseed meal	3,883	8	Cal-Nitro	134	–
Nitrate of soda	3,256	6	Ammo-Phos	102	–
Superphosphate 20%	2,866	11	Cotton hull ashes	89	6
Ground bone	2,070	25	Superphosphate 40%	84	–
Pulverized animal manures	1,476	30	Wood ashes	71	–
Cyanamid	1,033	–	Sulfate of potash	58	–
Milorganite	833	–	Colloidal phosphate	57	–
Sulfate of ammonia	714	11	Stone meal	44	–
Muriate of potash 50%	563	–	Dried blood	26	–
Muriate of potash 60%	490	6	Soybean meal	22	–
Nitrate of potash	443	5	Precipitated bone	12	–
Peat	219	–	Calcium nitrate	12	–
Basic slag phosphate	193	–	Urea	11	–
Animal tankage	185	11	Miscellaneous	18	5
Linseed meal	177	6			
Castor pomace	147	6	Totals	23,836	191

MIXED FERTILIZERS.

Deficiency Statistics for Mixed Fertilizers.

Manufacturer.	Number of Brands.		Number of Tests or Determinations.				
	Analyzed.	Approximately Equal to Guarantee in Commercial Valuation.	Totals. (a)	Not Exceeding ¼ Per Cent Below Guarantee.	Between ¼ and ½ Per Cent Below Guarantee.	Between ½ and ¾ Per Cent Below Guarantee.	More than ¾ Per Cent Below Guarantee.
Acme Guano Co.	6	6	18	4	1	0	0
Agricultural Laboratories, Inc.	1	1	3	0	0	0	1
American Agricultural Chemical Co.	50	50	150	22	6	1	2
Apothecaries Hall Co.	20	20	59	1	1	0	0
Armour Fertilizer Works	26	26	77	10	5	0	0
Ernest J. Bantle	1	1	3	0	0	0	0
F. A. Bartlett Tree Expert Co.	1	1	3	0	0	0	0
Belmont Gardens	1	1	3	0	0	0	0
Berkshire Chemical Co.	16	16	48	4	0	0	1
Joseph Breck & Sons Corp.	4	4	12	2	0	0	1
C. & R. Sales Co.	1	1	3	0	0	0	0
Chemi-Grow Ltd.	1	0	3	1	0	1	1
Clay & Son, Ltd.	1	1	3	0	0	0	0
Collins Seed Service Co.	4	4	12	3	0	0	0
Consolidated Rendering Co.	31	31	96	9	1	2	3
Davey Tree Expert Co.	1	1	3	0	0	0	0
Dehydrating Process Co.	1	1	3	1	0	0	0
Eastern States Farmers' Exchange	17	17	64	1	3	0	1
Thomas W. Emerson Co.	1	1	3	0	0	0	0
Excell Laboratories	1	1	3	1	0	0	0
Flower City Charcoal Co.	2	2	6	0	0	0	0
H. L. Frost & Higgins Co.	2	2	6	1	0	0	0
Garden Hose Spray Co., Inc.	1	1	3	0	1	0	0
Goulard & Olena, Inc.	1	1	3	1	0	0	0
Thomas J. Grey Co.	1	1	3	1	0	0	0
Hartney-Amalia, Inc.	1	1	3	0	0	0	0
Allen Hersom Co.	2	2	6	1	0	0	0
A. H. Hoffman, Inc.	1	1	3	0	0	0	0
Independent Manufacturing Co.	1	1	3	0	0	0	0
International Agricultural Corp.	23	22	76	6	5	3	1
McClain Brothers Co.	1	1	3	1	0	0	0
Miller Chemical & Fertilizer Corp.	7	5	21	2	0	0	2
New England Toro Co.	1	1	3	0	0	0	0
Old Deerfield Fertilizer Co., Inc.	24	24	76	0	0	0	0
Olds & Whipple, Inc.	14	14	42	2	0	0	0
F. G. Phillips Co.	1	1	3	0	0	0	0
Plantabbs Corp.	1	1	3	0	0	0	0
Rogers & Hubbard Co.	29	29	87	5	1	1	1
Salem Chemical & Supply Co.	1	1	3	0	0	0	0
O. M. Scott & Sons Co.	1	1	3	1	0	0	0
M. L. Shoemaker & Co., Inc.	1	1	2	1	0	0	0
Standard Wholesale Phosphate & Acid Works, Inc.	8	8	24	1	1	0	2
Sutton & Sons, Ltd.	1	1	3	1	0	0	1
Swift & Co. Fertilizer Works	4	4	12	1	1	0	0
F. Sylvester & Son	1	1	3	0	0	0	0
Synthetic Nitrogen Products Corp.	1	1	3	0	0	0	0
Tennessee Corp.	2	2	6	0	0	0	0
Universal Chemical Co.	1	1	3	0	0	0	0
Virginia-Carolina Chemical Corp.	2	2	6	1	0	0	0
C. P. Washburn Co.	4	4	12	2	0	1	0
Winslow Nurseries	1	1	3	0	0	0	0
Woodruff Fertilizer Works, Inc.	7	7	21	0	0	0	0
F. H. Woodruff & Sons	1	1	3	0	0	0	0
Totals	334	330	1,026	87	26	9	17

a Several analyses of the same brand have been averaged and recorded in the table as one analysis. Analyses of fertilizer left over from previous year not included.

Summary of Deficiencies in Mixed Fertilizers.

	1936.	1937.	1938.
Brands deficient in one element	61	77	89
Brands deficient in two elements	7	16	20
Brands deficient in three elements	2	2	3
Brands deficient in nitrogen	22	39	35
Brands deficient in available phosphoric acid	33	29	70
Brands deficient in potash	26	47	32
Brands deficient in magnesium oxide	0	0	2

Serious Commercial Shortages in Mixed Fertilizers.

Amount of Shortage Per Ton.	Number of Brands According to Years.			
	1935.	1936.	1937.	1938.
More than $5	1	none	1	1
Between $4 and $5	none	none	none	1
Between $3 and $4	1	1	none	1
Between $2 and $3	none	none	3	1
Between $1 and $2	2	none	3	1

Of the 335 brands analyzed, 222, or 66 percent, showed no deficiencies. Out of 1,026 plant food guarantees made, 87 percent were fully maintained.

The deficiency table shows the following statistics:

Deficiencies not exceeding ¼ of one percent, 87.
Deficiencies between ¼ and ½ of one percent, 26.
Deficiencies between ½ and ¾ of one percent, 9.
Deficiencies more than ¾ of one percent, 17.

Of the total number of guarantees of each element made, 11 percent of the nitrogen, 21 percent of the available phosphoric acid, and 10 percent of the potash were not met. Twenty-six of the 35 nitrogen deficiencies, 42 of the 70 available phosphoric acid deficiencies, and 18 of the 32 potash deficiencies did not exceed ¼ of one percent.

Compared with the 1937 inspection, there were 4 less shortages in nitrogen, 41 more in available phosphoric acid, and 15 less in potash.

In the case of those fertilizers which did not conform strictly to the guarantee, the discrepancies were of such a character as to make it evident that there was no intentional attempt at violation of the regulations.

Fourteen firms have registered five or more brands of mixed fertilizers. On the basis of composition found by analysis as well as upon tonnage sold, the following table shows to what extent each manufacturer was successful in avoiding deficiencies in plant food guarantees in his mixtures. All but three of the fourteen firms provided an average overrun in the three major plant food elements guaranteed, considered desirable in safe fertilizer practice.

Mixing Efficiency Table.

Manufacturer.	Average Percentage of Plant Food Above or Below the Minimum Guarantee.		
	Nitrogen.	Available Phosphoric Acid.	Potash.
Acme Guano Co.	+.16	—.07	+.01
American Agricultural Chemical Co.	+.21	—.003	+.21
Apothecaries Hall Co.	+.52	+.78	+.39
Armour Fertilizer Works	+.09	+.22	+.23
Berkshire Chemical Co.	+.10	+.32	+.27
Consolidated Rendering Co.	+.10	+.17	+.18
Eastern States Farmers' Exchange	+.34	+.52	+.70
International Agricultural Corp.	+.11	+.21	+.21
Miller Chemical & Fertilizer Corp.	—.10	+.16	+.32
Old Deerfield Fertilizer Co., Inc.	+.44	+.92	+.85
Olds & Whipple, Inc.	+.41	+.46	+1.11
Rogers & Hubbard Co.	+.55	+.42	+.48
Standard Wholesale Phosphate & Acid Works, Inc.	+.14	+.63	+.36
Woodruff Fertilizer Works, Inc.	+.10	+.88	+.54

Summary of Data on Acid and Basic Fertilizers.

Fertilizer Tonnage Tested					Extent of Acidity or Basicity on Fertilizer Sold, Expressed in Tons of Calcium Carbonate ($CaCO_3$).				
	1935	1936	1937	1938		1935	1936	1937	1938
Acid	35,715	34,746	32,957	32,790	Acidity	3,840	3,826	3,596	3,539
Basic	6,967	8,393	14,877	11,297	Basicity	445	571	984	815
Total	42,682	43,139	47,834	44,087	Net acidity*	3,395	3,255	2,612	2,724
					Average acidity*	159	151	109	124

* The net acidity is the total amount of calcium carbonate, expressed in tons, which would be required to neutralize all the fertilizer tested.

The average acidity is the average amount of calcium carbonate, expressed in pounds, which would have to be added to each ton of mixed fertilizer to make neutral all of the fertilizer tested.

AVERAGE ANALYSIS OF MIXED FERTILIZERS*

	1935		1936		1937		1938	
	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found
Nitrogen	4.82	5.26	4.96	5.18	5.05	5.29	5.14	5.31
Available phosphoric acid	8.04	8.90	8.26	8.63	8.13	8.59	8.33	8.56
Potash	6.59	7.19	6.82	7.17	6.91	7.20	7.10	7.50

*Does not include fertilizer mixed for special orders.

During the past four years, the average guarantee of the mixed fertilizers has been higher each year than the preceding year, with the exception of the average guaranteed available phosphoric acid which was slightly lower in 1937.

Explanation of Tables of Analyses.

Guarantee. The plant food guarantee or the grade of each fertilizer is made a part of the trade name under the heading "Name of Manufacturer and Brand," and is expressed as nitrogen, available phosphoric acid and water soluble potash and in that order.

Commercial Shortages. In the table designated "Mixtures showing a commercial shortage of $1 or more per ton," the column headed "Approximate commercial valuation per ton" gives the sum of the valuation of each plant food element computed from the analysis by use of the trade values adopted by the Massachusetts Fertilizer Control for 1938, which appear on a preceding page of the bulletin.

Under the heading "Approximate commercial shortage per ton" is shown the commercial valuation of the deficiencies or tests found below the guarantee after allowance is made for the value of overruns or tests above the guarantee.

Deficiencies are emphasized by boldface type.

Mixtures Substantially Complying with the Guarantee. In addition to the analysis of those fertilizers substantially complying with the guarantee, this table includes also those mixtures that are more or less out of balance; that is, having deficiencies in one or more plant food elements, but having overruns which largely offset the value of the deficiencies.

"Number of samples" indicates the number of samples included in the composite which was analyzed.

Inferior Nitrogen. The presence of inferior forms of organic nitrogen is indicated by footnotes.

Potash Forms. Wherever tests for chlorine showed a sufficient amount present to unite with all of the potash found, the source of the potash is designated as muriate. Wherever insufficient chlorine was found to account for all of the potash it is evident that forms of potash other than muriate were used. In such cases, the figures under the sub-heading "As muriate" do not imply necessarily that muriate of potash was actually added to the mixture, but that chlorine was present, probably from impurities in the fertilizer chemicals, in amounts to account for the percentage of potash indicated. The balance of the potash found is listed under the sub-heading "In forms other than muriate" and may be derived from sulfate, nitrate, or carbonate, as the case may be.

Mixtures Showing a Commercial Shortage of $1 or More Per Ton.

Name of Manufacturer and Brand.	Where Sampled.	Approximate Commercial Valuation Per Ton.	Approximate Commercial Shortage Per Ton.	Nitrogen Found.				Phosphoric Acid.		Potash (K_2O) Found.	
				In Ammoniacal Forms.	In Nitrate Forms.	In Organic Forms.	Total.	Available.	Total.	As Muriate.	In Forms Other than Muriate.
Chemi-Grow Ltd.											
Chemi-Grow 10–5–19	Manufacturer	$38.34	$5.36	.24	9.56	.05	**9.85**	**4.39**	4.39	–	**14.46**
International Agricultural Corp.											
International 8–24–8 (*a*)	North Woburn	43.58	4.05	5.47	.98	1.06	**7.51**	**19.53**	19.81	9.84	–
Miller Chemical & Fertilizer Corp.											
Rich Yield 5–8–10 (*a*)	Hudson	23.78	3.36	2.44	.08	.60	**3.12**	8.49	8.97	10.43	–
Rich Yield 7–6–6	Southboro	26.65	1.26	2.89	.28	1.06	**4.23**	8.05	8.68	10.42	–
Rich Yield 7–6–6 (*b*)	Brockton	23.11	2.89	4.42	.22	.84	**5.48**	7.04	7.88	**4.86**	–

a One other sample substantially complied with the guarantee.
b A composite of two other samples substantially complied with the guarantee.

Mixtures Substantially Complying with Guarantees.

Number of Samples.	Name of Manufacturer and Brand.	Nitrogen Found.				Available Phosphoric Acid Found.	Potash (K_2O) Found.	
		In Ammoniacal Forms.	In Nitrate Forms.	In Organic Forms.	Total.		As Muriate.	In Forms Other than Muriate.
	Acme Guano Co.							
1	Acme 2-8-10 Sergents Mixture	1.76	.12	.58	2.46	7.97	10.59	–
1	Acme 3-10-4 Sergents Mixture	4.27	.13	.93	5.33	10.01	5.29	–
1	Acme 4-6-10 Sergents Mixture	3.04	.72	.40	4.16	8.94	10.03	–
1	Acme 4-8-4 Sergents Mixture	3.02	–	1.26	4.28	8.12	4.18	–
2	Acme 4-8-4 Sergents Mixture	3.09	.19	.73a	4.01	7.97	3.68	.28
2	Acme 4-8-7 Sergents Mixture	3.24	.07	.75	4.06	7.98	6.69	.34
1	Acme 4-8-7 Sergents Mixture	3.32	.05	.73	4.10	7.52	6.84	–
1	Acme 5-8-7 Sergents Mixture	3.51	1.21	.43	5.15	7.63	6.98	–
	Agricultural Laboratories, Inc.							
2	Stim-U-Plant 11-12-15	3.15	9.39	.06	12.60	11.14	–	20.27
	American Agricultural Chemical Co.							
1	AA 3-10-6 Fertilizer	1.98	.37	.87	3.22	9.70	5.88	–
1	AA 4-8-8 Fertilizer	3.13	.69	.35	4.17	8.10	8.19	–
1	AA 4-8-8 Fertilizer	3.25	.62	.45	4.32	7.94	8.38	–
1	AA 4-12-4 Fertilizer	3.16	.37	.88	4.41	12.07	4.04	–
1	AA 6-8-6 Fertilizer	5.09	.58	.32	5.99	7.75	5.95	–
1	AA 8-16-16 Fertilizer	6.72	.82	.47	8.01	16.18	16.23	–
1	AA 8-16-16 Fertilizer	6.65	1.05	.35	8.05	16.14	16.37	–

1	AA 10–6–4 Fertilizer	4.28	.23	5.43	9.94	6.45	4.50	–
4	AA Complete Manure with 10% Potash 4–8–10	2.73	.67	.65	4.05	8.20	10.34	–
3	AA Complete Manure with 10% Potash 4–8–10	3.07	.57	.43	4.07	7.74	10.26	–
4	AA Corn Favorite 3–10–4	2.17	.29	.61	3.07	9.66	4.48	–
3	AA Corn Favorite 3–10–4	2.29	.37	.61	3.27	9.70	4.25	–
3	AA Cranberry Fertilizer 5–6–4	3.82	.69	.63	5.14	6.69	4.11	–
2	AA Cranberry Fertilizer 5–6–4	3.97	.65	.37	4.99	6.15	4.00	–
4	AA Double Strength Fertilizer 8–16–14	6.78	.91	.50	8.19	16.05	13.59	–
1	AA Double Strength Fertilizer 8–16–20	6.84	.87	.30	8.01	16.42	18.30	–
6	AA Monarch Fertilizer 4–8–4	2.69	.48	.88	4.05	7.98	4.08	–
1	AA Monarch Fertilizer 4–8–4	2.69	.67	.70	4.06	8.26	4.30	–
3	AA Peerless Fertilizer 4–8–7	2.68	.68	.70	4.06	7.92	7.07	–
8	AA Potato Grower 5–8–10	3.63	1.02	.58	5.23	7.94	9.95	–
5	AA Potato & Vegetable Fertilizer 5–8–7	3.62	.96	.45	5.03	7.15	7.22	–
3	AA Potato & Vegetable Fertilizer 5–8–7	4.50	.85	.49	5.84	7.25	7.11	–
3	AA Prolific 10% Potash Fertilizer 2–8–10	1.41	.60	.32	2.33	7.98	10.01	–
3	AA Tobacco Starter 5–5–15	.30	2.74	1.96	5.00	5.61	–	15.28
1	AA Tobacco Starter 5–5–15	.12	2.94	2.15	5.21	5.17	–	16.10
5	AA Top Dresser 7–6–6	5.30	.99	.86	7.15	5.91	6.12	–
2	AA Top Dresser 7–6–6	5.53	1.11	.48	7.12	6.07	6.04	–
5	Agrico for Aroostook with 10% Potash 5–8–10	3.53	.91	.60	5.04	7.95	10.09	–
3	Agrico for Aroostook with 10% Potash 5–8–10	3.68	.70	.68	5.06	8.11	10.24	–
5	Agrico for Corn 3–10–6	2.05	.58	.70	3.33	10.00	6.31	–
3	Agrico for Corn 3–10–6	2.16	.35	.99	3.50	10.34	6.60	–
5	Agrico for Corn 4–12–6	2.33	.81	.84	3.98	11.91	6.29	–
2	Agrico for Corn 4–12–6	2.48	.79	.80	4.07	12.08	6.30	–
1	Agrico for Corn 4–12–6	2.59	1.30	.78	4.67	11.97	6.25	–
2	Agrico Country Club Fertilizer 6–8–2	3.54	.81	1.94	6.29	8.69	2.33	–

a The water insoluble nitrogen was of inferior quality.

Mixtures Substantially Complying with Guarantees — Continued.

Number of Samples.	Name of Manufacturer and Brand.	Nitrogen Found.				Available Phosphoric Acid Found.	Potash (K_2O) Found.	
		In Ammoniacal Forms.	In Nitrate Forms.	In Organic Forms.	Total.		As Muriate.	In Forms Other than Muriate.
	American Agricultural Chemical Co.—Concluded							
4	Agrico Country Club Fertilizer 8–6–2	4.68	.78	2.76	8.22	6.78	2.07	–
5	Agrico Country Club Fertilizer 8–6–2	4.32	1.02	3.02	8.36	6.57	2.38	–
4	Agrico Country Club Fertilizer 8–6–4	5.46	.88	1.75	8.09	6.06	4.03	–
5	Agrico for Fruit 9–6–6	7.17	1.09	.52	8.78	6.52	6.65	–
1	Agrico for Fruit 9–6–6	7.49	.68	.89	9.06	6.04	5.98	–
4	Agrico for Gardens 4–10–4	3.41	.03	1.16	4.60	10.23	4.09	–
3	Agrico for Lawns, Trees and Shrubs 7–7–5	4.69	.83	1.75	7.27	8.10	5.24	–
4	Agrico for Lawns, Trees and Shrubs 7–7–5	4.59	.85	1.71	7.15	7.87	5.37	–
6	Agrico for New England 4–8–10	2.74	.64	.72	4.10	7.92	10.13	–
1	Agrico for New England 4–8–10	2.96	.58	.73	4.27	8.01	10.37	–
2	Agrico for Onions 5–10–5	3.26	.99	.82	5.07	9.98	5.11	–
5	Agrico for Pastures & Top Dressing 7–6–6	5.53	1.09	.63	7.25	5.98	6.19	–
4	Agrico for Pastures & Top Dressing 7–6–6	5.64	.89	.56	7.09	6.11	6.20	–
7	Agrico for Potatoes & Vegetables 5–8–7	3.57	1.23	.50	5.30	8.05	7.13	–
2	Agrico for Potatoes & Vegetables 5–8–7	3.79	1.08	.52	5.39	7.95	7.66	–
4	Agrico for Potatoes Double Strength 8–16–14	6.69	.77	.49	7.95	16.50	13.88	–
4	Agrico for Potatoes Double Strength 8–16–20	6.40	1.11	.48	7.99	16.34	20.04	–
1	Agrico for Potatoes Double Strength 8–16–20	6.71	1.25	.37	8.33	16.12	20.49	–
1	Agrico for Seeding Down 4–16–20	2.67	.98	.50	4.15	15.96	20.08	–

3	Agrico for Tobacco 6–3–6	1.13	.67	4.21	6.01	3.94	–	6.27
1	Agrico for Tobacco 6–3–6	1.21	.73	3.95	5.89	3.68	–	6.79
3	Bowker's All Round Fertilizer 3–10–4	2.48	.21	.77	3.46	9.23	4.61	–
3	Bowker's All Round Fertilizer 3–10–4	2.12	.54	.79	3.45	9.94	4.42	–
4	Bowker's Market Garden Fertilizer 4–8–4	2.71	.58	.77	4.06	8.00	4.41	–
4	Bowker's Market Garden Fertilizer 4–8–4	2.68	1.11	.79	4.58	7.86	4.07	–
4	Bowker's Stockbridge Early Crop Manure 5–8–7	3.69	.98	.51	5.18	7.39	7.50	–
4	Bowker's Stockbridge Early Crop Manure 5–8–7	3.59	1.02	.65	5.26	8.09	7.17	–
3	Bowker's Stockbridge Potato & Vegetable Manure 4–8–10	3.08	.51	.71	4.30	8.52	10.06	–
5	Bowker's Stockbridge Potato & Vegetable Manure 4–8–10	2.85	1.02	.70	4.57	7.93	10.30	–
4	Bradley's Blood, Bone & Potash Brand 5–8–7	3.84	.82	.66	5.32	7.89	7.57	–
3	Bradley's Blood, Bone & Potash Brand 5–8–7	3.53	1.18	.66	5.37	8.03	7.29	–
3	Bradley's Complete Manure for Potatoes & Vegetables 4–8–7	2.83	.85	.73	4.41	8.12	7.06	–
6	Bradley's Complete Manure with 10% Potash 4–8–10	2.83	.72	.76	4.31	8.00	10.08	–
3	Bradley's Northland Fertilizer 4–8–4	2.79	.67	.71	4.17	7.98	4.14	–
5	Bradley's XL Fertilizer 3–10–4	2.28	.23	.86	3.37	9.67	4.36	–
3	Bradley's XL Fertilizer 3–10–1	2.26	.69	.67	3.62	9.91	4.19	–
4	Co-Op 5–8–7 Fertilizer	3.67	1.23	.62	5.52	7.79	7.11	–
3	Co-Op 7–6–6 Fertilizer	5.32	.98	.92	7.22	6.02	6.12	–
1	Co-Op 8–16–14 Fertilizer	6.78	.81	.64	8.23	16.37	13.45	–
2	Double A Tobacco Fertilizer 5–3–5	.93	.62	3.46	5.01	3.05	–	5.41
2	National Pine Tree Brand 4–8–4	2.48	.75	.82	4.05	8.07	4.11	–
1	Sanderson's Formula A 4–8–4	2.67	.79	.65	4.11	8.04	4.10	–
2	Sanderson's Formula B 4–8–7	2.55	.48	1.00	4.03	8.67	–	6.56
	Apothecaries Hall Co.							
1	Liberty Corn 2–10–2	1.29	.43	1.24	2.96	10.08	3.55	–
2	Liberty Fish, Bone and Potash 3–10–4	1.14	1.30	1.13	3.57	10.05	5.41	–
1	Liberty Green Gro 6–5–3	2.96	1.21	2.64	6.78	6.45	–	4.70

Mixtures Substantially Complying with Guarantees — Continued.

Number of Samples.	Name of Manufacturer and Brand.	Nitrogen Found.				Available Phosphoric Acid Found.	Potash (K_2O) Found.	
		In Ammoniacal Forms.	In Nitrate Forms.	In Organic Forms.	Total.		As Muriate.	In Forms Other than Muriate.
	Apothecaries Hall Co.—Concluded.							
2	Liberty High Analysis 10-16-14	6.46	1.87	2.11	10.44	16.98	14.28	–
1	Liberty High Grade Corn 2-12-4	1.42	.12	1.07	2.61	12.20	5.25	–
6	Liberty High Grade Market Gardeners 5-8-7	3.70	1.13	.81	5.64	8.84	7.22	–
2	Liberty High Grade Market Gardeners 5-8-7	3.68	1.03	.71	5.42	8.90	7.22	–
3	Liberty High Grade Market Gardeners (Special Organic) 5-8-7	2.79	1.41	1.26	5.46	8.98	8.12	–
1	Liberty High Grade Tobacco Manure 6-3-7	.16	3.11	2.92	6.19	4.38	–	8.04
4	Liberty Market Gardeners Special 4-8-4	2.98	.90	.78	4.66	8.76	4.64	–
3	Liberty Market Gardeners Special 4-8-4	2.38	1.02	1.20	4.60	8.41	4.36	–
1	Liberty Market Gardeners Special with Sulphate of Potash 4-8-4	.97	1.36	1.93	4.26	8.63	–	4.40
2	Liberty Potato & General Crops 4-8-10	2.49	.89	.85	4.23	8.90	10.78	–
1	Liberty Potato & Market Garden (Potash as Muriate) 4-8-7	2.71	.94	.69	4.34	8.42	7.27	–
1	Liberty Special Fertilizer for Fruit 7-8-6	2.93	3.83	.58	7.34	8.64	6.13	–
1	Liberty Special Fertilizer for Fruit (Special Formula) 7-8-6	2.67	4.12	.72	7.51	8.55	6.34	–
1	Liberty Special Fertilizer for Lawns, Gardens, Shrubs, Flowers, Trees 4-4-0	.08	.04	4.66	4.78	5.71	–	–
3	Liberty Tobacco Fertilizer 6-3-6 with Cotton Hull Ashes	.16	1.47	4.57	6.20	4.54	–	6.58
1	Liberty Tobacco Special 5-3-5	.12	1.23	3.62	4.97	3.86	–	6.21
1	Liberty Tobacco Starter with Potash 5-4-15	.10	2.42	2.81	5.33	5.08	–	15.79
3	Liberty Top Dresser for Grass & Grain 8-8-8	.62	7.77	.60	8.99	8.06	9.27	–
1	Liberty Tree & Shrub Food 10-8-8	.42	7.30	3.09	10.81	7.58	1.64	7.30

	Armour Fertilizer Works							
2	Armours Big Crop Fertilizer 3–10–4	2.03	.46	.62	3.11	9.96	4.26	–
4	Armours Big Crop Fertilizer 3–12–6	1.91	.46	.73	3.10	12.04	6.80	–
1	Armours Big Crop Fertilizer 3–12–6	1.91	.59	.75	3.25	12.12	6.11	–
6	Armours Big Crop Fertilizer 4–8–4	2.79	.59	.65	4.03	7.92	4.43	–
1	Armours Big Crop Fertilizer 4–8–4	2.76	.61	.77*a*	4.14	8.69	4.16	–
4	Armours Big Crop Fertilizer 4–8–7	2.32	.91	.80	4.03	7.77	7.08	–
2	Armours Big Crop Fertilizer 4–8–7	2.42	.80	.90	4.12	8.02	7.20	–
5	Armours Big Crop Fertilizer 4–8–10	2.49	.87	1.14	4.50	8.42	10.34	–
3	Armours Big Crop Fertilizer 4–8–10	2.56	.68	.91*a*	4.15	8.21	10.08	–
1	Armours Big Crop Fertilizer 4–10–4	2.71	.89	.71	4.31	9.93	4.03	–
1	Armours Big Crop Fertilizer 4–16–4	3.12	.40	.64	4.16	16.33	4.06	–
4	Armours Big Crop Fertilizer 5–8–7	3.02	1.03	1.11	5.16	8.43	7.13	–
3	Armours Big Crop Fertilizer 5–8–7	3.07	1.19	.97*a*	5.23	8.09	7.19	–
4	Armours Big Crop Fertilizer 5–8–10	3.71	.73	.70	5.14	8.37	9.88	–
1	Armours Big Crop Fertilizer 5–8–10	3.49	.69	.83	5.01	8.47	9.43	–
3	Armours Big Crop Fertilizer 6–11–10	5.03	.70	.29	6.02	11.01	10.10	–
4	Armours Big Crop Fertilizer 7–6–6	5.30	.90	.86	7.06	6.65	6.15	–
3	Armours Big Crop Fertilizer 8–16–14	6.34	1.11	.45	7.90	15.97	14.15	–
4	Armours Big Crop Fertilizer 8–16–20	6.43	1.32	.29	8.04	16.18	20.17	–
1	Armours Big Crop Fertilizer 8–16–20	6.74	1.32	.18	8.24	16.61	19.88	–
1	Armours Big Crop Orchard and Grape Fertilizer 7–8–6	4.59	1.49	.63	6.71	8.49	6.05	–
1	Armours Big Crop Tobacco Special 5–3–5	.38	1.35	3.39	5.12	4.52	–	5.27
2	Armours Big Crop Tobacco Special 6–3–6	.47	1.40	4.51	6.38	3.06	–	6.49
2	Armours Big Crop Tobacco Starter 5–5–15	.28	2.17	2.48	4.93	5.36	–	16.69
3	Armours Fertilizer 0–20–20	–	–	–	–	19.54	19.79	–
4	Armours Fertilizer 4–8–8	2.51	.92	.95	4.38	8.35	8.14	–
3	Armours Fertilizer 4–8–8	2.42	.66	1.00*a*	4.08	8.52	8.11	–
1	Armours Fertilizer 4–12–4	2.75	.81	.65	4.21	11.80	4.01	–

a The water insoluble nitrogen was of inferior quality.

Mixtures Substantially Complying with Guarantees — Continued.

Number of Samples.	Name of Manufacturer and Brand.	Nitrogen Found.				Available Phosphoric Acid Found.	Potash (K_2O) Found.	
		In Ammoniacal Forms.	In Nitrate Forms.	In Organic Forms.	Total.		As Muriate.	In Forms Other than Muriate.
	Armour Fertilizer Works—Concluded							
1	Armours Fertilizer 6–8–6	4.09	1.10	.98	6.17	8.15	6.42	–
3	Armours Fertilizer 8–16–16	6.59	1.44	.30	8.33	15.94	15.98	–
1	Armours Fertilizer 8–16–16	6.31	.78	.70	7.79	16.45	15.50	–
1	Armours Fertilizer 8–24–8	6.48	1.16	.46	8.10	23.71	8.71	–
1	Armours Garden & Lawn Fertilizer 4–8–6	2.51	.99	.62	4.12	7.65	7.36	–
3	Armours Special Putting Green Mixture 8–5–2	3.65	1.60	2.47	7.72	6.46	2.68	–
1	Armours Special Tree Food Mixture 10–8–6	8.58	.94	.52	10.04	8.78	3.41	2.59
	Ernest J. Bantle							
4	Bantle's Special Tobacco Fertilizer	.50	1.88	3.78	6.16	4.32	–	7.34
	F. A. Bartlett Tree Expert Co.							
1	Bartlett Green Tree Food 6–7–4	5.42	.20	1.31	6.93	8.62	4.44	–
	Belmont Gardens							
1	Belgard Plant Food 6–15–4	5.06	.29	1.30	6.65	15.51	–	5.06
	Berkshire Chemical Co.							
1	Berkshire Complete Fertilizer 2–12–2	1.72	.41	.28	2.41	12.34	2.17	–
1	Berkshire Complete Tobacco Fertilizer 5–3–5	.72	.68	3.56	4.96	3.55	–	5.17
1	Berkshire Farmers Favorite Fertilizer 5–10–5	3.87	.95	.63	5.45	10.56	5.10	–
1	Berkshire Fertilizer 5–8–10	3.81	.59	.59	4.99	8.42	8.85	–
1	Berkshire Golf Green Fertilizer 8–5–2	1.86	.57	5.41	7.84	6.36	2.38	–
2	Berkshire Grass Special Fertilizer 6–6–5	4.67	.53	.80	6.00	6.16	5.44	–
4	Berkshire High Grade Tobacco Fertilizer 6–3–6	.12	.52	5.38	6.02	3.43	–	6.26

5	Berkshire Long Island Special Fertilizer 4–8–7	2.86	.54	.64	4.04	8.34	7.35	–
1	Berkshire Long Island Special Fertilizer—Potash from Sulphate 4–8–7	2.94	.44	.63	4.01	8.41	–	7.08
4	Berkshire Market Garden Fertilizer 4–8–4	2.76	.44	.88	4.08	7.99	4.20	–
1	Berkshire Market Garden Fertilizer 4–8–4	3.18	.44	.49	4.11	8.56	4.23	–
4	Berkshire Onion Special Fertilizer 4–10–4	3.06	.35	.63	4.04	10.39	4.55	–
3	Berkshire Potato & Garden Special Fertilizer 5–8–7	3.99	.56	.70	5.25	8.53	7.15	–
1	Berkshire Potato & Garden Special Fertilizer 5–8–7	3.62	.55	.89	5.06	8.30	7.06	–
1	Berkshire Potato & Garden Fertilizer—Potash from Sulphate 5–8–7	3.93	.40	.70	5.03	7.94	–	7.08
1	Berkshire Tobacco Starter Fertilizer 5–5–15	.12	3.41	1.89	5.42	5.32	–	15.39
1	Davco Granulated Fertilizer 5–8–7	4.46	.13	.52	5.11	8.84	7.20	–
2	Davco Granulated Fertilizer 6–6–5	5.65	.20	.22	6.07	6.13	5.90	–
	Joseph Breck & Sons, Corp.							
2	Breck's Home Garden Fertilizer 5–10–10	1.72	2.15	1.34	5.21	10.16	–	9.85
1	Brexone Bulb Food 5–8–5	2.69	1.71	.79*a*	5.19	4.90	–	5.39
3	Brexone Lawn & Flower Food 5–10–4	2.27	1.44	1.67	5.38	9.96	3.19	1.01
2	Brexone Rose Food 4–12–4	1.51	1.59	1.02*a*	4.12	13.53	3.28	.79
	C & R Sales Co.							
1	Nitro-Organure 10–6–4	4.78	1.12	4.53	10.43	7.29	4.56	–
	Clay & Son, Ltd.							
4	Clay's Fertilizer 5–9–2	2.45	.25	2.93	5.63	9.41	–	2.45
	Collins Seed Service Co.							
2	Casta-Poma Grass Manure 5–6–2	1.70	1.84	2.01	5.55	6.38	2.67	–
2	Complete Grass Manure 6–8–2	2.53	1.11	2.16	5.80	8.05	2.68	–
1	General Purpose Manure 4–8–4	2.25	.67	1.41	4.33	8.38	3.70	.27
1	Ver-Best P. G. Manure 7–8–3	3.41	.69	2.87	6.97	8.19	3.23	–

a The water insoluble nitrogen was of inferior quality.

Mixtures Substantially Complying with Guarantees — Continued.

Number of Samples.	Name of Manufacturer and Brand.	Nitrogen Found.				Available Phosphoric Acid Found.	Potash (K_2O) Found.		Magnesium Oxide.	
		In Ammoniacal Forms.	In Nitrate Forms.	In Organic Forms.	Total.		As Muriate.	In Forms Other than Muriate.	Found.	Guaranteed.
	Consolidated Rendering Co.									
1	Competitive Brand 4–8–8	3.57	.44	.18	4.19	8.01	7.95	–		
1	Competitive Brand 8–16–16	7.25	.66	.32	8.23	18.08	15.49	–		
1	Competitive Brand 8–16–16	5.83	1.07	1.37	8.27	17.42	15.10	–		
1	Competitive Brand 8–16–16	5.91	.68	1.56	8.15	17.12	15.08	–		
1	Competitive Brand 12–16–12	11.31	.51	.23	12.05	15.06	12.72	–		
5	Corenco 3–10–4 Animal Brand	1.17	.86	1.08	3.11	9.91	4.16	–		
3	Corenco 3–10–4 Animal Brand	1.71	1.06	.62	3.39	9.99	4.40	–		
6	Corenco 4–8–4 Corn & Vegetable	2.05	1.01	1.05	4.11	8.14	4.19	–		
2	Corenco 4–8–4 Corn & Vegetable	2.16	1.13	.86	4.15	8.15	4.14	–		
4	Corenco 4–8–7 Market Garden	2.19	.91	1.00	4.10	8.16	7.42	–		
2	Corenco 4–8–7 Market Garden	2.27	.99	.93	4.19	8.17	7.50	–		
6	Corenco 4–8–10 Potato Grower	2.13	.92	1.00	4.05	7.83	10.18	–		
4	Corenco 4–8–10 Potato Grower	2.35	.90	.82	4.07	8.30	10.02	–		
1	Corenco 4–10–4 Complete Onion & Corn	2.16	1.02	.97	4.15	10.01	4.04	–		
1	Corenco 4–12–4 Complete Manure	2.22	.94	.97	4.13	12.07	4.37	–		
1	Corenco 5–3–5 Tobacco Grower	.54	.85	3.89	5.28	3.49	–	5.99		
4	Corenco 5–5–5 Lawn & Shrub Fertilizer	1.61	.71	2.88	5.20	6.48	5.20	–		
1	Corenco 5–5–15 Tobacco Starter	.38	1.54	3.51	5.43	5.45	–	15.88		
5	Corenco 5–8–7 General Crop Manure	3.11	1.01	.98	5.10	8.01	7.15	–		
3	Corenco 5–8–7 General Crop Manure	3.06	.98	.97	5.01	8.36	7.10	–		

3	Corenco 5-8-7 Made with Water Soluble Magnesium	3.11	1.07	.96	5.14	7.84	7.08	–	.94	1.00
6	Corenco 5-8-10 Peerless Potato	3.02	.89	1.09	5.00	7.97	10.20	–		
1	Corenco 5-8-10 Made with Water Soluble Magnesium	3.02	.96	.94	4.92	8.26	9.38	–	1.29	1.00
2	Corenco 5-9-8	2.63	1.35	1.24	5.22	9.25	8.31	–		
1	Corenco 5-10-5 Super Truck	3.16	1.03	1.06	5.25	10.29	4.98	–		
2	Corenco 6-3-6 Special Tobacco Grower	.74	1.21	4.48	6.43	3.27	–	6.97		
1	Corenco 7-3-7 Super Tobacco Grower	.78	1.61	4.86	7.25	3.26	–	7.64		
5	Corenco 7-6-6 Complete Fruit and Top Dressing	4.74	1.31	.94	6.99	6.41	6.23	–		
5	Corenco 7-6-6 Complete Fruit and Top Dressing	4.87	1.10	1.21	7.18	6.38	6.08	–		
1	Corenco 8-6-4 Top Dressing	4.54	1.31	2.16	8.01	6.28	4.26	–		
3	Corenco 8-16-14 Two in One	5.95	1.05	1.01	8.04	16.21	14.54	–		
3	Corenco 8-16-14 Two in One	6.00	1.66	.79	8.45	16.48	15.00	–		
1	Corenco 8-16-14 (Two in One) Made with Water Soluble Magnesium	4.57	2.55	.98	8.10	14.18	14.92	–	2.84	2.00
1	Corenco 10-6-4	4.78	.29	5.63	10.70	6.61	5.21	–		
1	Gracol Garden Fertilizer 5-8-4	.98	1.20	3.60	5.78	7.48	4.70	–		
1	Lowell 4-8-4 Corn & Vegetable	2.34	.99	.85	4.18	7.73	4.05	–		
1	Lowell 4-8-10 Potato Grower	2.31	.95	.80	4.06	8.26	9.86	–		
1	Lowell 5-8-7 Market Garden Manure	3.14	.98	1.04	5.16	8.07	7.05	–		
2	Lowell 7-6-6 Complete Fruit & Top Dressing	5.38	.98	.61	6.97	6.05	6.09	–		
3	New England 8-6-2 Putting Green Special	4.37	.85	2.88	8.10	7.08	2.53	–		
3	New England 8-6-2 Putting Green Special	5.12	.21	2.88	8.21	6.93	2.07	–		

Mixtures Substantially Complying with Guarantees — Continued.

Number of Samples.	Name of Manufacturer and Brand.	Nitrogen Found.				Available Phosphoric Acid Found.	Potash (K_2O) Found.		Magnesium Oxide.	
		In Ammoniacal Forms.	In Nitrate Forms.	In Organic Forms.	Total.		As Muriate.	In Forms Other than Muriate.	Found.	Guaranteed.
	Davey Tree Expert Co.									
1	Davey Tree Food 10-3-3	6.29	1.60	2.19	10.08	4.33	3.46	–		
	Dehydrating Process Co.									
2	Fish Organo 4-3-1	.36	.04	3.82	4.22	2.29	–	1.19		
1	Fish Organo 4-3-1	.36	.40	4.04	4.80	3.82	–	1.28		
	Eastern States Farmers' Exchange									
3	Eastern States 0-20-20	–	–	–	–	20.89	21.38	–		
1	Eastern States 0-20-20	–	–	–	–	19.69	20.88	–	2.23	1.60
6	Eastern States 4-8-8	2.84	1.13	.53	4.50	8.59	8.82	–	5.21	4.00
6	Eastern States 4-12-4	3.06	.45	.79	4.30	12.21	4.51	–	2.82	2.00
3	Eastern States 4-12-4	3.81	.05	.53	4.39	11.51	4.34	–	3.22	2.00
5	Eastern States 4-16-20	1.23	2.04	1.19	4.46	16.74	20.13	–	2.80	2.00
1	Eastern States 5-5-15 Tobacco	.24	2.28	3.11	5.63	5.82	–	15.98	3.65	2.70
1	Eastern States 6-3-6 Cranberry	.16	6.07	.48	6.71	4.26	–	7.35		
7	Eastern States 6-8-6	1.92	3.56	.63	6.11	8.84	6.80	–	3.51	3.00
6	Eastern States 7-14-19	2.29	3.79	1.05	7.13	14.91	19.95	–	2.45	2.00
2	Eastern States 7-14-19	4.75	1.67	.40	6.82	17.18	18.03	–	2.39	2.00
2	Eastern States 8-4-8 Tobacco	1.28	4.81	1.98	8.07	5.24	–	8.60	3.69	2.50
1	Eastern States 8-4-8 Tobacco	2.83	1.34	3.91	8.08	4.82	–	8.10	3.85	2.50

1	Eastern States 8-12-20 (1937 stock)	6.02	1.87	.34	8.23	11.06	17.52	3.40	2.13	1.60
6	Eastern States 8-16-16	5.98	2.18	.18	8.34	16.25	16.85	–	2.67	2.00
1	Eastern States 8-16-16	5.62	2.12	.56	8.30	17.68	16.08	–	2.63	2.00
1	Eastern States 8-16-16 Low Chlorine Special	5.13	2.10	.59	8.12	14.57	–	17.82	1.87	1.60
4	Eastern States 8-20-12	2.89	4.90	.54	8.33	19.70	12.55	–	1.74	2.00
5	Eastern States 8-24-8	6.11	.20	1.92	8.23	24.64	8.39	–	2.46	1.40
4	Eastern States 8-24-8	5.16	.53	2.66	8.35	23.84	8.32	–	2.34	1.40
3	Eastern States 10-5-10 Tobacco	4.38	2.19	3.78	10.35	6.00	–	11.06	2.83	2.80
5	Eastern States 12-4-4	7.75	1.03	.52	12.30	4.61	4.54	–	4.06	3.50
1	Eastern States 12-4-4	7.98	4.43	.43	12.84	4.44	4.41	–	3.89	3.50
5	Eastern States 12-16-12	8.07	3.87	.38	12.32	16.30	2.00	11.25	2.22	1.60
3	Eastern States 12-16-12	8.06	3.59	.69	12.34	17.08	–	12.82	2.00	1.60
	Thomas W. Emerson Co.									
5	English Formula Lawn and Garden Dressing 5-7-3	3.00	.36	2.19	5.55	8.29	2.64	.65		
	Excell Laboratories									
1	"New Plant Life" 2-2-2	1.38	1.16	.60	3.14	1.82	–	2.48		
1	"New Plant Life" 1-1-1 (old stock)	.68	.69	.88	2.25	1.11	–	1.57		
	Flower City Charcoal Co.									
1	Char-Gro 4-16-1	5.31	.12	.38	5.81	17.82	4.14	–		
1	Char-Top 1-1-1	2.13	–	.48	2.61	7.43	1.52	.28		
	H. L. Frost & Higgins Co.									
1	Frost's Lawn and Shrubbery Special 8-6-3	4.25	.72	4.28	9.25	6.79	2.43	1.25		
1	Frost's Shade Tree Special 8-6-6	3.18	1.63	2.99	7.80	6.90	5.01	1.40		

Mixtures Substantially Complying with Guarantees — Continued.

Number of Samples.	Name of Manufacturer and Brand.	Nitrogen Found.				Available Phosphoric Acid Found.	Potash (K_2O) Found		Magnesium Oxide.	
		In Ammoniacal Forms.	In Nitrate Forms.	In Organic Forms.	Total.		As Muriate.	In Forms Other than Muriate.	Found.	Guaranteed.
	Garden Hose Spray Co., Inc.									
1	"Arnold" Balanced Fertilizer 10–18–12 . .	.10	9.52	.10	9.72	21.58	–	11.27		
	Goulard & Olena, Inc.									
1	G & O Lawn-Garden & Flower Fertilizer 5–8–5	2.81	.20	3.84	6.85	7.83	5.47	–		
	Thomas J. Grey Co.									
2	Grey's 9–6–6 Plant Food	5.71	1.18	2.00	8.89	6.18	6.07	–		
	Hartney-Amalia, Inc.									
1	Hartney-Amalia Vitafood 7–7–6 . . .	3.26	.80	3.28	7.34	7.98	6.98	–		
1	Hartney-Amalia Vitafood 7–7–6 . . .	3.55	1.36	2.45	7.36	7.45	6.52	–		
	Allen Hersom Co.									
2	Neverfail 4–8–4	2.12	1.01	.88	4.01	8.59	4.16	–		
2	Neverfail 5–8–7	2.79	1.08	1.03	4.90	8.10	7.00	–		
	A. H. Hoffman, Inc.									
4	Hoffman's Plant Food 5–8–6	2.21	1.77	1.36	5.34	10.93	–	6.07		
	Independent Manufacturing Co.									
1	Smith's Mum Manure 5–6–5	2.42	.74	2.69	5.85	11.14	5.12	–		

	International Agricultural Corp.									
4	International 3-10-4	.74	1.62	.77	3.13	10.86	4.13	–		
1	International 3-10-4	1.63	.75	.79	3.17	10.21	3.81	.25		
6	International 4-8-4	2.49	.83	.89	4.21	8.44	3.29	.92		
2	International 4-8-4	2.57	.68	.78	4.03	8.18	4.02	–		
2	International 4-8-7	1.36	2.11	.79	4.26	8.51	7.04	–		
4	International 4-8-8	2.90	.57	.59	4.06	8.30	8.24	–		
3	International 4-8-8	3.23	.48	.35	4.06	8.23	8.25	–		
4	International 4-8-10	2.57	.72	.79	4.08	8.05	10.64	–		
6	International 4-8-10	1.35	2.10	.63	4.08	8.69	10.41	–		
3	International 4-12-4	1.29	2.26	.85	4.40	12.44	4.71	–		
6	International 5-8-7	3.24	1.07	.80	5.11	8.37	7.06	–		
2	International 5-8-7	3.48	.70	1.04	5.22	8.19	7.17	–		
2	International 5-8-10	1.93	2.72	.64	5.29	8.64	10.05	–		
1	International 5-8-10	3.54	1.30	.71	5.55	8.03	10.17	–		
1	International 5-12-6	3.28	.82	1.02	5.12	11.33	6.18	–		
3	International 6-8-6	2.38	2.84	.77	5.99	7.71	6.55	–		
1	International 6-12-12-2	2.78	1.92	1.14	5.84	11.70	12.63	–	2.58	2.00
4	International 7-6-6	4.95	.86	1.19	7.00	6.37	6.35	–		
2	International 7-6-6	5.41	.72	.95	7.08	6.15	6.38	–		
2	International 8-6-2	1.84	2.64	3.63	8.11	6.16	2.36	–		
1	International 8-6-2	3.04	1.38	3.67	8.09	7.18	2.85	–		
2	International 8-16-14-2	2.97	4.20	.45	7.62	16.21	13.50	–	2.33	2.00
1	International 8-16-14-2	6.72	1.05	.66	8.43	16.57	12.96	–	2.35	2.00
3	International 8-16-16-2	6.39	1.03	.64	8.06	16.13	16.43	–	2.61	2.00
4	International 8-16-16-2	3.20	3.97	.87	8.04	16.39	16.92	–	2.22	2.00
1	International 8-16-16-2	6.46	.81	.88	8.15	16.70	15.20	–	2.33	2.00

Mixtures Substantially Complying with Guarantees — Continued.

Number of Samples.	Name of Manufacturer and Brand.	Nitrogen Found.				Available Phosphoric Acid Found.	Potash (K_2O) Found.		Magnesium Oxide.	
		In Ammoniacal Forms.	In Nitrate Forms.	In Organic Forms.	Total.		As Muriate.	In Forms Other than Muriate.	Found.	Guaranteed.
	International Agricultural Corp.—Concluded									
1	International 8-24-8 (*b*)	6.68	.78	.54	8.00	24.59	7.75	–		
2	International 10-6-4	6.79	1.06	1.74	9.59	6.30	4.59	–		
1	International 12-16-12	10.44	1.22	.15	11.81	16.48	11.49	–		
2	International Caribee 5-10-10-2	1.95	1.25	2.05	5.25	10.12	–	10.83	2.47	2.00
5	International Caribee 5-10-10-2	.88	2.05	2.29	5.22	10.03	.94	9.34	2.29	2.00
1	International Caribee 5-10-10-2	.80	1.97	2.37	5.14	9.58	–	10.18	2.73	2.00
4	International Caribee 7-5-3-2	1.69	2.73	2.60	7.02	5.58	–	3.47	2.70	2.00
3	International Caribee 7-5-3-2	.92	5.44	.87	7.23	5.28	–	3.32	3.03	2.00
1	International Caribee 7-5-3-2	2.00	2.96	2.15	7.11	5.34	–	3.41	2.10	2.00
2	International Caribee 7-12-10-2	3.09	1.59	2.30	6.98	11.74	2.40	7.34	2.71	2.00
3	International Growers Cranberry Fertilizer 6-6-5	.08	4.51	1.59	6.18	6.36	5.05	–		
1	International Growers Cranberry Fertilizer 6-6-5	.22	6.05	.01	6.31	6.09	5.10	–		
1	International Tobacco Starter 5-8-16-2	.87	2.97	1.32	5.16	9.39	–	16.40	3.80	2.00
	McClain Brothers Co.									
3	Veg-E-Tonic 21-13-10	12.09	.33	9.43	21.85	15.41	9.83	–		
	Miller Chemical & Fertilizer Corp.									
1	Rich Yield 3-10-4	1.95	.15	.90*a*	3.00	11.57	5.69	–		
2	Rich Yield 4-8-4	2.86	.26	.92	4.04	8.04	3.73	.43		
1	Rich Yield 4-8-4	2.97	.06	1.03	4.06	8.10	4.42	–		

2	Rich Yield 4–8–7	2.93	.30	.82*a*	4.05	7.81	7.38	–		
1	Rich Yield 4–8–10	2.82	.11	1.03*a*	3.96	8.29	9.69	–		
5	Rich Yield 4–8–10	3.00	–	1.08	4.08	7.89	10.13	–		
1	Rich Yield 4–8–10	2.90	.27	.86	4.03	8.02	9.12	.87		
2	Rich Yield 5–8–7	4.49	–	.56	5.05	8.39	7.03	–		
5	Rich Yield 5–8–7	4.39	.16	.52	5.07	7.98	7.30	–		
1	Rich Yield 5–8–7	4.45	.20	.66	5.31	7.30	7.48	–		
1	Rich Yield 5–8–10 (*b*)	4.49	–	.53	5.02	8.13	10.10	–		
2	Rich Yield 7–6–6 (*c*)	5.87	.09	1.06*a*	7.02	6.58	6.21	–		
	New England Toro Co.									
4	Neteo Greens Formula 8–6–2	5.42	.21	2.73	8.36	6.31	2.12	.36		
	Old Deerfield Fertilizer Co., Inc.									
1	Old Deerfield Complete Tobacco 5–3–5	.16	.78	4.45	5.39	4.84	–	5.76		
2	Old Deerfield Concentrated 8–16–14	3.44	.78	4.29	8.51	16.33	12.16	4.21		
1	Old Deerfield Concentrated, Potash Other than Muriate 8–16–14	3.58	.49	4.35	8.42	17.48	–	11.93	3.87	2.00
1	Old Deerfield Concentrated 8–16–20	3.76	.54	4.30	8.60	16.76	16.60	4.52	3.66	2.00
2	Old Deerfield 8–16–20, Potash Other than Muriate	3.66	.90	4.29	8.85	16.92	–	20.79	3.80	2.00
3	Old Deerfield Corn & Seeding 3–10–6	2.67	–	1.17	3.84	10.08	7.02	–		
3	Old Deerfield General Crop 4–8–4	1.54	.50	2.10	4.14	8.45	4.43	–		
1	Old Deerfield General Crop 4–8–4	1.68	.80	1.83	4.31	8.54	3.65	.93		

a The water insoluble nitrogen was of inferior quality.
b One other sample was deficient: see analysis in table of "Mixtures showing a commercial shortage of $1 or more per ton."
c Two other samples were deficient: see analyses in table of "Mixtures showing a commercial shortage of $1 or more per ton."

Mixtutes Substantially Complying with Guarantees—Continued.

Number of Samples.	Name of Manufacturer and Brand.	Nitrogen Found.				Available Phosphoric Acid Found.	Potash (K_2O) Found.		Magnesium Oxide.	
		In Ammoniacal Forms.	In Nitrate Forms.	In Organic Forms.	Total.		As Muriate.	In Forms Other than Muriate.	Found.	Guaranteed.
	Old Deerfield Fertilizer Co., Inc.—Concluded									
3	Old Deerfield Grass Top Dressing 7-6-6 .	5.24	.67	1.59	7.50	7.02	6.50	–		
2	Old Deerfield High Grade Tobacco 6-3-7 .	.93	.59	5.13	6.65	3.46	–	8.33		
1	Old Deerfield High Grade Tobacco 6-3-7 .	.16	.53	6.02	6.71	4.47	–	8.07		
3	Old Deerfield High Potash 4-8-10 . . .	1.23	.32	2.87	4.42	8.96	7.65	3.55		
3	Old Deerfield Lawnshrub 5-5-5 . . .	1.83	.07	3.80	5.70	7.12	4.56	1.13		
4	Old Deerfield Onion & Truck 5-8-7 . .	1.77	.74	2.86	5.37	9.59	6.48	1.27		
4	Old Deerfield Potato & Market Garden 4-8-7	1.59	.68	2.09	4.36	8.84	4.54	2.70		
1	Old Deerfield Potato & Market Garden 4-8-7	1.54	.60	2.18	4.32	8.99	3.94	3.53		
3	Old Deerfield Potato, Potash Other than Muriate 4-8-7	1.73	.44	2.37	4.54	9.12	–	7.50	3.09	2.00
3	Old Deerfield Set Onion, Potash Other than Muriate 5-8-7	1.80	.89	2.65	5.34	9.42	–	7.49		
1	Old Deerfield 5-4-15 Tobacco	.28	.96	4.38	5.62	4.60	–	17.58		
3	Old Deerfield Tobacco Starter Bone & Potash 5-8-12	.16	1.21	4.23	5.60	8.80	–	13.88		
4	Old Deerfield Truckers Special 5-10-5 . .	2.02	.38	2.79	5.19	11.42	4.39	1.09		
4	Valley Brand General Crop 4-8-4 . . .	2.48	1.29	.45	4.22	8.33	3.33	1.06		
1	Valley Brand Grain Grower 2-8-10 . .	.84	.51	.81	2.16	8.69	10.20	–		

1	Valley Brand High Potash 4–8–10 . . .	1.85	.96	1.26	4.07	8.52	10.22	–		
3	Valley Brand Market Garden 4–8–7 . .	2.52	1.30	.50	4.32	8.36	6.12	1.18		
2	Valley Brand Onion & Truck 5–8–7 . .	3.19	1.36	.73	5.28	8.33	6.06	1.13		
1	Alsop Special Mixture No. 2 (5.62–.6–9.6)	.26	.85	4.93	6.04	2.34	–	11.01		
	Olds & Whipple, Inc.									
1	"Luxura"5–8–6	2.36	.60	2.57	5.53	10.44	6.72	–		
4	O & W Blue Label Tobacco Fertilizer 6–3–6	.38	.76	5.11	6.25	2.91	–	6.67		
1	O & W Complete Tobacco Fertilizer 5–3–5 .	.36	.48	4.49	5.33	3.72	–	6.04		
1	O & W Market Garden Fertilizer 4–8–4 .	2.54	.44	1.24	4.22	7.80	4.45	–		
1	O & W 4–8–4 Market Garden with Sulphate	2.88	.24	1.52	4.64	8.22	–	4.42		
2	O & W Potato & General Purpose Fertilizer 4–8–7	2.88	.33	1.04	4.25	8.39	8.38	–		
3	O & W Potato & Geueral Purpose Fertilizer 5–8–7	3.16	.80	1.11	5.07	8.22	7.54	–		
2	O & W Special Fertilizer 4–3–12 . . .	.51	1.54	4.29	6.34	9.54	–	18.20		

Mixtures Substantially Complying with Guarantees — Continued.

Number of Samples.	Name of Manufacturer and Brand.	Nitrogen Found.				Available Phosphoric Acid Found.	Potash (K_2O) Found.	
		In Ammoniacal Forms.	In Nitrate Forms.	In Organic Forms.	Total.		As Muriate.	In Forms Other than Muriate.
	Olds & Whipple, Inc.—Concluded							
1	O & W Top Dressing & Grass Fertilizer 8-6-6	3.73	3.35	1.02	8.10	6.67	6.52	–
1	O & W 3-10-4 Corn Special Fertilizer	1.79	.18	1.14	3.11	10.23	4.29	–
3	O & W 4-8-10 Fertilizer	2.42	.36	1.39	4.17	8.40	10.37	–
4	O & W Fertilizer 4-10-4	1.78	1.56	.87	4.21	10.12	4.46	–
1	O & W 5-4-15 H. G. Tobacco Starter & Potash Compound	.26	1.90	3.51	5.67	4.71	–	16.09
2	O & W 8-16-14 Fertilizer	4.38	.43	3.74	8.55	16.53	14.63	–
	F. G. Phillips Co.							
4	Ferti-Flora 3-3-3	1.36	1.55	.26	3.17	3.19	–	3.53
	Plantabbs Corp.							
2	Fulton's Plantabbs 11-15-20	3.70	7.06	.57	11.33	19.97	–	25.65
	Plantspur Products Co.							
2	Plantspur Fertilizer 3-3-2	3.17	.10	.59	3.86	3.10	2.29	–
1	Plantspur Fertilizer 3-3-2	3.08	.04	.71	3.83	3.57	2.50	–
	Rogers & Hubbard Co.							
1	Alsop's Special Formula (5-1-14.7)	.73	3.02	1.81	5.56	2.01	–	15.53
2	Gro-Fast Plant Food 5-6-6	1.60	.33	3.83	5.76	5.07	–	6.37
1	Gro-Fast Plant Food 5-6-6	1.37	2.50	1.85	5.72	6.48	–	5.09

4	Hubbard's All Soils Fertilizer 4-8-4	1.83	.14	2.07	4.04	8.14	4.58	–
2	Hubbard's Climax Tobacco Fertilizer 5-3-5	.81	1.06	3.30	5.17	3.52	–	6.26
3	Hubbard's Corn Fertilizer 4-8-7	1.70	.75	1.69	4.14	8.00	7.25	–
3	Hubbard's Corn and Grain Fertilizer 3-10-4	1.61	.45	1.32	3.38	10.18	4.80	–
2	Hubbard's Golf Course Fertilizer 8-6-2	2.43	.39	5.65	8.47	6.52	2.90	–
1	Hubbard's High Potash Fertilizer 4-8-10	1.83	.70	1.65	4.18	8.25	10.55	–
2	Hubbard's Onion Fertilizer 5-8-7	2.55	.43	2.19	5.17	7.42	7.40	–
6	Hubbard's Potato Fertilizer 5-8-7	2.26	.64	2.28	5.18	7.94	7.42	–
2	Hubbard's Potato Fertilizer 5-8-7	2.30	.30	2.52	5.12	7.80	7.58	–
2	Hubbard's Potato Fertilizer with Sulphate 5-8-7	2.36	.41	2.30	5.07	8.10	–	7.68
1	Hubbard's Seeding Fertilizer 3-7-6	2.60	.11	.85	3.56	8.38	6.50	–
3	Hubbard's Tobacco Grower 6-3-6	.30	.85	4.96	6.11	3.89	–	7.01
1	Hubbard's Tobacco Grower 6-3-6	.22	1.09	4.92	6.23	4.34	–	7.01
3	Hubbard's Tobacco Manure 5-8-10	2.46	.30	2.36	5.12	8.22	–	10.80
1	Hubbard's Tobacco Manure 5-8-10	2.44	.39	2.22	5.05	9.81	–	10.94
3	Hubbard's Tobacco Starter 5-4-15	.28	2.38	2.52	5.18	5.38	–	16.00
4	Hubbard's Top Dressing 8-5-8	.16	7.58	.60	8.34	7.74	8.39	–
1	Hubbard's Top Dressing 8-5-8	.08	7.23	.77	8.08	7.07	8.02	–
2	M & M Special (4.7-2.2-13.8)	.22	2.45	2.48	5.15	3.33	–	15.22
1	Red H 4-6-10	3.06	.34	1.05	4.45	5.91	10.42	–
3	Red H 4-8-4	2.82	.14	1.31	4.27	8.00	4.59	–
5	Red H 4-8-4	2.88	.56	.97	4.41	8.35	4.52	–
4	Red H 4-8-7	3.02	.61	.69	4.32	7.95	7.36	–
1	Red H 4-8-7	3.02	.42	.85	4.29	8.02	7.60	–
2	Red H 4-8-8 Fertilizer	3.49	.51	.38	4.38	8.25	8.37	–

Mixtures Substantially Complying with Guarantees — Continued.

Number of Samples.	Name of Manufacturer and Brand.	Nitrogen Found.				Available Phosphoric Acid Found.	Potash (K_2O) Found.	
		In Ammoniacal Forms.	In Nitrate Forms.	In Organic Forms.	Total.		As Muriate.	In Forms Other than Muriate.
	Rogers & Hubbard Co.—Concluded							
4	Red H 4-8-10	2.96	.54	.87	4.37	8.14	10.45	–
2	Red H 4-8-10	3.04	.51	.80	4.35	7.83	10.58	–
6	Red H 5-8-7	3.54	.78	.91	5.23	8.49	7.12	–
4	Red H 5-8-7	3.69	.48	1.01	5.18	8.01	7.18	–
1	Red H 5-8-7	2.29	1.33	1.51	5.13	8.34	7.26	–
1	Red H 5-8-7 with Sulphate	3.51	.82	.87	5.20	8.12	–	7.48
4	Red H 7-6-6	5.45	.77	1.10	7.32	6.42	6.54	–
3	Red H 7-6-6	5.68	.49	1.01	7.18	6.41	6.55	–
3	Red H 8-16-14	6.92	1.15	.28	8.35	16.12	14.06	–
1	Red H 8-16-14	6.51	.97	.74	8.22	16.84	14.49	–
1	Red H 8-16-14 with Sulphate	6.52	1.27	.71	8.50	16.52	–	13.16
1	Red H 8-16-20	6.91	1.29	.58	8.78	15.83	20.14	–
1	Special 5-8-7 Fertilizer	1.79	.98	2.39	5.16	8.56	–	7.58
	Salem Chemical & Supply Co.							
2	Plant Food 3-4-3	2.96	.41	.22	3.59	4.97	4.55	–
	O. M. Scott & Sons Co.							
1	Scotts Turf Builder 10-6-4	6.30	.21	4.10	10.61	6.10	3.32	1.41
1	Scotts Turf Builder 10-6-4	5.76	.36	4.24	10.36	5.82	3.38	1.23
	M. L. Shoemaker & Co., Inc.							
3	"Swift-Sure" Tobacco Starter 4-10-0	2.30	.52	1.32	4.14	9.83	–	–

	Standard Wholesale Phosphate & Acid Works, Inc.							
1	Standard 4-6-10	3.15	.18	.74	4.07	8.40	9.33	-
1	Standard 3-8-4	2.31	.02	.96	3.29	9.34	6.73	-
2	Standard 4-8-4	2.89	.58	.92	4.39	8.64	4.06	-
2	Standard 4-8-4	3.01	.31	.83	4.15	8.47	4.02	-
1	Standard 4-8-7	3.05	.16	.88a	4.09	8.44	7.87	-
1	Standard 5-8-7	3.17	.88	1.05	5.10	8.86	5.99	.72
1	Standard 5-8-7	3.57	.12	1.55	5.24	8.73	6.56	.28
1	Standard 6-8-2 Putting Green Special	3.25	.46	2.72	6.43	9.44	1.52	2.04
1	Standard 7-6-6	4.05	.49	1.65	6.19	5.63	9.76	-
1	Standard 8-16-14	6.52	.19	1.56	8.27	16.83	14.22	-
	Sutton & Sons, Ltd.							
1	Sutton's Simplex Fertilizer 5-5-2	1.09	.70	6.39	8.18	4.79	1.04	-
	Swift & Co. Fertilizer Works							
2	Roseclawn 5-8-7	3.20	.47	1.15	4.82	8.17	7.05	-
1	Swift's Special Golf Fertilizer 6-12-4	5.62	.35	.21	6.18	12.19	3.67	-
1	Swift's Special Golf Fertilizer 12-6-4	11.52	.31	.25	12.08	6.47	4.08	-
4	Vigoro 4-12-4	3.46	.27	.38	4.11	12.25	4.44	-
4	Vigoro 4-12-4	3.57	.47	.16	4.20	12.71	4.35	-
	F. Sylvester & Son							
2	Dove Brand Fertilizer 4-6-3	2.72	.04	1.63	4.39	7.15	3.09	.86
	Synthetic Nitrogen Products Corp.							
2	Nitrophoska 15-30-15	12.62	3.07	.25	15.94	31.23	15.95	-

a The water insoluble nitrogen was of inferior quality.

Mixtures Substantially Complying with Guarantees — Concluded.

Number of Samples.	Name of Manufacturer and Brand.	Nitrogen Found.				Available Phosphoric Acid Found.	Potash (K_2O) Found	
		In Ammoniacal Forms.	In Nitrate Forms.	In Organic Forms.	Total.		As Muriate.	In Forms Other than Muriate.
	Tennessee Corp.							
3	Loma (5–10–4)	4.02	.54	.81	5.37	10.11	3.72	.48
1	Loma (5–10–4)	3.99	.70	.50	5.19	9.91	3.67	.78
1	Soil-Prep (4–2–2)	1.88	.36	1.78*a*	4.02	2.36	1.50	.60
	Universal Chemical Co.							
5	Electra, America's Finest Plant Food—High Organic 4–9–3	1.95	1.13	2.26	5.34	11.35	1.57	1.78
	Virginia-Carolina Chemical Corp.							
1	BloomAid (New Process) 4–10–3	3.04	–	1.72	4.76	11.43	1.60	1.98
5	V-C Fairway Fertilizer (New Process) 6–6–4	4.36	.32	1.19*a*	5.87	6.72	2.63	1.78
	C. P. Washburn Co.							
2	Washburn's 7–6–6	5.56	1.10	.73	7.39	6.40	6.29	–
3	"Made Right" Corn & Vegetable 4–8–4	2.74	.68	.65	4.07	7.96	4.15	–
3	"Made Right" Market Garden 5–8–7	3.62	1.00	.78	5.40	7.41	7.27	–
4	"Made Right" Special Potato 4–8–10	2.77	.90	.89	4.56	8.08	9.95	–
	Winslow Nurseries							
2	Green Valley Plant Foo 5–10–7	.64	1.16	3.23	5.03	10.92	6.50	.72

	Woodruff Fertilizer Works, Inc.							
1	Woodruff's 4–8–7 Fertilizer	2.08	.12	1.89	4.09	8.98	7.50	–
1	Woodruff's 4–8–7 Fertilizer	1.97	.12	1.93	4.02	8.93	7.94	–
1	Woodruff's 4–8–7 Fertilizer	2.43	.54	1.04	4.01	8.06	6.90	–
1	Woodruff's Big Crop Fertilizer 5–8–7	2.06	.87	2.28	5.21	8.98	7.62	–
1	Woodruff's Big Crop Fertilizer 5–8–7 Potash from Sulphate	2.35	1.09	1.59	5.03	8.39	–	7.24
1	Woodruff's Market Garden Fertilizer 4–8–4	2.16	.16	1.88	4.20	9.13	4.56	–
1	Woodruff's Onion Special Fertilizer 4–10–4	2.30	.09	1.77	4.16	11.86	4.50	–
2	Woodruff's Tobacco Special Fertilizer 6–3–6	.44	.99	4.70	6.13	3.75	–	7.24
2	Woodruff's Tobacco Starter 5–5–15	.30	1.23	3.57	5.10	5.85	–	15.35
	F. H. Woodruff & Sons							
1	Gro-Sod Lawn Food 10 6 4	7.93	.22	2.38	10.53	6.39	2.75	1.34

a The water insoluble nitrogen was of inferior quality.

CHEMICALS AND RAW PRODUCTS.

Summary of Results of the Inspection of Fertilizer Simples and Raw Products.

Material.	Number of Samples Collected.	Number of Analyses Made.	Average Percentage of Nitrogen	Average Percentage of Total Phosphoric Acid.	Average Percentage of Available Phosphoric Acid.	Average Percentage of Water Soluble Potash.	Average Selling Price Per Ton.	Average Commercial Valuation per Ton.	Cost of One Pound of Plant Food (Cents).
Nitrate of soda	41	9	16.25*a*	–	–	–	$36.73	$32.50	11.30 (nitrogen)
Nitrate of potash	9	6	13.19*b*	–	–	43.74	67.17	67.06	10.02 (nitrogen) 4.66 (potash)
Nitrate of soda-potash	7	1	14.35*c*	–	–	14.35	43.40	42.05	10.32 (nitrogen) 4.80 (potash)
Nitrate of lime	1	1	15.75*d*	–	–	–	40.77	31.50	12.94 (nitrogen)
Cal-Nitro	9	3	21.03	–	–	–	40.00	42.06	9.51 (nitrogen)
Ammonium sulfate	58	17	20.64	–	–	–	37.09	36.74	8.98 (nitrogen)
Synthetic urea	4	2	42.53	–	–	–	70.74	76.98	8.32 (nitrogen)
Cyanamid	6	2	21.40	–	–	–	38.72	29.96	9.05 (nitrogen)
Ammo-Phos	5	3	11.49	51.19	49.56	–	70.03	70.56	8.83 (nitrogen) 4.96 (available phosphoric acid)
Cottonseed meal	84	84	6.69	2.13	–	1.96*e*	30.07	33.45*f*	22.47 (nitrogen)
Castor pomace	9	9	5.88	2.77	–	1.08*e*	29.86	26.46*f*	25.39 (nitrogen)
Linseed meal	1	1	6.28	1.94	–	1.57*e*	48.00	28.26*f*	38.22 (nitrogen)
Dried blood	6	5	12.99	.57	–	–	82.36	65.38	31.49 (nitrogen)
Milorganite	6	2	6.41	3.09	2.59	–	36.17	36.73	26.10 (nitrogen) 4.92 (available phosphoric acid)
Agrinite	2	1	8.60	1.01	–	–	–	47.98	–
Horn and hoof meal	1	1	14.88	–	–	–	86.40	74.40	28.93 (nitrogen)
Superphosphate 16%	68	15	–	17.23	16.65	–	16.59	16.85	4.92 (available phosphoric acid)
Superphosphate 20%	51	11	–	21.37	20.51	–	19.96	20.80	4.80 (available phosphoric acid)
Superphosphate 40%	5	1	–	42.45	40.73	–	37.61	41.31	4.55 (available phosphoric acid)
Precipitated bone	3	3	–	42.37	41.55	–	44.92	39.34	5.36 (available phosphoric acid)
Basic slag phosphate	4	2	–	18.64	15.99	–	27.88	26.49	8.42 (available phosphoric acid)
Muriate of potash	49	15	–	–	–	58.65	41.40	44.57	3.53 (potash)
High grade sulfate of potash	15	7	–	–	–	49.40	44.95	48.41	4.55 (potash)
Sulfate of potash-magnesia	3	3	–	–	–	30.92*g*	37.41	40.81	6.05 (potash) 5.80 (water soluble magnesium oxide)
Cotton hull ashes	9	9	–	2.17	–	32.85*h*	47.66	48.75	6.75 (potash)
Wood ashes	3	3	–	2.41	–	5.41*i*	31.76	13.98	15.68 (potash)
Dry ground fish	22	12	9.79	6.34*j*	–	–	70.67	67.81	33.55 (nitrogen) 3.91 (phosphoric acid)
Animal tankage	32	14	9.85	7.62*k*	–	–	60.53	49.47	27.43 (nitrogen) 4.26 (phosphoric acid)
Ground bone	91	26	2.86	24.18*l*	–	–	42.81	31.43	33.26 (nitrogen) 4.92 (phosphoric acid)
Ground tobacco stems	2	2	2.10	.57	–	4.03*e*	24.30	13.04	–
Pulverized manures:									
Sheep	52	15	1.79	1.20*m*	–	3.31*e*	37.59	10.23	–
Sheep and goat	22	5	1.49	1.41*m*	–	3.47*e*	35.09	9.36	–
Cattle	19	7	1.98	1.66*m*	–	2.00*e*	45.96	10.20	–
Poultry	11	3	5.01	2.40*m*	–	1.31*e*	55.71	21.65	–
Pulverized poultry manure and peat	3	1	2.96	3.81*m*	–	1.58*e*	37.23	14.99	–

a Average chlorine .17%.
b Average chlorine .52%.
c Average chlorine .44%.
d Average chlorine .06%.
e Total potash.
f Not counting value of phosphoric acid or potash.
g Magnesium oxide 11.47%; chlorine 1.08%.
h Calcium oxide 10.86%; magnesium oxide 5.24%; manganese .021%; moisture 3.95%; insoluble matter 13.63%.
i Calcium oxide 35.53%; magnesium oxide 4.00%; manganese .52%; moisture 7.18%; insoluble matter 7.17%.
j Chlorine .30%.
k Average tankage finer than 1/50 inch, 45.60%; coarser than 1/50 inch, 54.40%.
l Average bone finer than 1/50 inch, 72.23%; coarser than 1/50 inch, 27.77%.
m Average organic matter: sheep manure, 44.71%; sheep and goat manure, 38.76%; cattle manure, 66.85%; poultry manure, 62.46%; poultry manure and peat, 63.21%.

Note: The average pound cost of nitrogen, phosphoric acid, and potash from all of the pulverized natura manures taken collectively would be as follows: nitrogen 66 cents; phosphoric acid 11 cents; potash 14 cents]

Nitrogen Compounds.

The chemicals and unmixed materials under this heading are valued chiefly for the nitrogen which they contain. Some of them, however, contain more than this one element; the nitrate of potash containing potash; the calcium nitrate and cyanamid containing lime; and the organic vegetable substances containing small quantities of phosphoric acid and potash, as will be noticed by a reference to the summary table on the previous page.

Brands showing a commercial shortage of one dollar or more per ton are listed by themselves, serious deficiencies being emphasized by boldface type.

Sulfate of Ammonia and Nitrate of Soda.

Manufacturer.	Sulfate of Ammonia.			Nitrate of Soda.			
	Number of Samples.	Nitrogen.		Number of Samples.	Nitrogen.		Chlorine
		Found.	Guaranteed.		Found.	Guaranteed.	Found
American Agricultural Chemical Co.	4	20.46	20.50	–	–	–	–
	1	20.40	20.50	–	–	–	–
	7	20.64	20.50	–	–	–	–
Apothecaries Hall Co.	5	20.80	20.50	–	–	–	–
Armour Fertilizer Works	1	20.76	20.50	–	–	–	–
Barrett Co.	3*a*	20.86	20.56	7	16.24	16.00	.14
	4	20.83	20.56	7	16.11	16.00	.20
	1	20.72	20.56	1	16.17	16.00	.16
	2	20.76	20.50	5	16.13	16.00	.20
Chilean Nitrate Sales Corp.	–	–	–	9*b*	16.16	16.00	.28
	–	–	–	3*c*	16.06	16.00	.30
Consolidated Rendering Co.	6	20.70	20.50	5	16.14	16.00	.22
	5	20.60	20.50	3	16.12	16.00	.20
Eastern States Farmers' Exchange	3	20.67	20.50	–	–	–	–
Ford Motor Co.	1	20.83	20.80	–	–	–	–
Goulard & Olena, Inc.(*d*)	1	20.84	20.75	–	–	–	–
International Agricultural Corp.	6	20.77	20.56	–	–	–	–
	7	20.58	20.56	–	–	–	–
Monsanto Chemical Co.	–	–	–	1	16.33	16.25	.14
Old Deerfield Fertilizer Co., Inc.	1	20.75	20.50	–	–	–	–

a Arcadian.
b Champion Brand.
c Old style.
d Registered for Sears, Roebuck & Co., distributors.

Calcium Nitrate, Cal-Nitro, Calcium Cyanamid and Urea.

Manufacturer.	Brand.	Number of Samples.	Nitrogen.	
			Found.	Guaranteed.
American Cyanamid Co.	"Aero" Cyanamid	5	21.41	21.00
	"Aero" Cyanamid	1	21.35	21.00
E. I. du Pont de Nemours & Co.	Uramon	2	43.54	42.00
Eastern States Farmers' Exchange	Eastern States Calnitro	6*a*	21.03	20.50
	Agricultural Urea	2	42.39	42.00
Foodndrink Fertilizer Co.	Foodndrink (*e*)	1	14.94	13.00
International Agricultural Corp.	Cal Nitro	2*b*	20.94	20.50
Synthetic Nitrogen Products Corp	Calcium Nitrate (Nitrate of Lime)	1*c*	15.75	15.00
	Cal-Nitro (old stock)	1*d*	20.68	20.50

a Chlorine .22%.
b Chlorine .18%.
c Chlorine .06%.
d Chlorine .20%
e Practically all of the nitrogen was present as nitrates.

Cottonseed Meal.

Manufacturer and Brand	Nitrogen	
	Found	Guaranteed
Ashcraft-Wilkinson Co.		
Cow-Eta Brand	6.66	6.58
Humphreys-Godwin Co.		
Dixie Brand	6.63	6.56
Dixie Brand	6.66	6.56
Dixie Brand	6.59	6.56
Dixie Brand	6.56	6.56
Dixie Brand	6.52	6.56
Dixie Brand	6.59	6.56
Dixie Brand	6.58	6.56
Dixie Brand	6.70	6.56
Dixie Brand	6.82	6.56
Dixie Brand	6.66	6.56
Dixie Brand	7.20	6.56
Dixie Brand	6.87	6.56
Dixie Brand	6.63	6.56
Dixie Brand	6.47	6.56
Dixie Brand	6.55	6.56
Dixie Brand	6.66	6.56
Dixie Brand	6.51	6.56
Dixie Brand	6.61	6.56
Dixie Brand	6.69	6.56
Dixie Brand	6.69	6.56
Dixie Brand	6.60	6.56
Dixie Brand	6.70	6.56
Dixie Brand	6.63	6.56
Dixie Brand	6.69	6.56
Dixie Brand	6.61	6.56
Dixie Brand	6.92	6.56
Dixie Brand	6.72	6.56
Dixie Brand	6.89	6.56
Dixie Brand	6.65	6.56
Dixie Brand	6.86	6.56
Dixie Brand	6.47	6.56
Dixie Brand	6.60	6.56
Dixie Brand	6.79	6.56
Dixie Brand	6.87	6.56
Dixie Brand	6.90	6.56
Dixie Brand	6.78	6.56
Dixie Brand	6.59	6.56
Dixie Brand	6.63	6.56
Dixie Brand	6.67	6.56
Dixie Brand	6.52	6.56
Dixie Brand	6.63	6.56
Dixie Brand	6.99	6.56
Dixie Brand	6.62	6.56
Dixie Brand	6.74	6.56
Dixie Brand	6.47	6.56
Dixie Brand	6.62	6.56

Manufacturer and Brand	Nitrogen	
	Found	Guaranteed
L. B. Lovitt & Co.		
Del-Cot Brand	6.58	6.56
Del-Cot Brand	6.71	6.56
Del-Cot Brand	6.58	6.56
Del-Cot Brand	6.66	6.56
Del-Cot Brand	6.43	6.56
L. B. Lovitt & Co.		
"Lovit" Brand	6.97	6.56
"Lovit" Brand	6.67	6.56
"Lovit" Brand	6.65	6.56
"Lovit" Brand	6.65	6.56
"Lovit" Brand	6.59	6.56
"Lovit" Brand	6.76	6.56
"Lovit" Brand	6.90	6.56
"Lovit" Brand	6.62	6.56
"Lovit" Brand	6.61	6.56
"Lovit" Brand	6.72	6.56
"Lovit" Brand	6.77	6.56
"Lovit" Brand	6.82	6.56
"Lovit" Brand	6.74	6.56
"Lovit" Brand	6.67	6.56
"Lovit" Brand	6.69	6.56
"Lovit" Brand	6.66	6.56
"Lovit" Brand	6.77	6.56
"Lovit" Brand	6.66	6.56
"Lovit" Brand	6.42	6.56
"Lovit" Brand	6.55	6.56
"Lovit" Brand	6.76	6.56
"Lovit" Brand	6.79	6.56
"Lovit" Brand	6.72	6.56
"Lovit" Brand	6.61	6.56
"Lovit" Brand	6.44	6.56
"Lovit" Brand	6.60	6.56
Perkins Oil Co.		
Golden Rod	6.65	6.56
Golden Rod	6.53	6.56
Swift & Co., Oil Mills		
Cottonbloom	6.54	6.58
Cottonbloom	6.60	6.58
C. P. Washburn Co.		
Harlingen	6.84	6.56
Brand Showing Commercial Shortage of More Than $1 per Ton		
L. B. Lovitt & Co.		
"Lovit" Brand	**6.27***a*	6.56

a Commercial shortage per ton $1.31.

Nitrate of Potash, Nitrate of Soda-Potash.

Manufacturer.	Number of Samples.	Nitrogen.		Potassium Oxide.		Chlorine
		Found.	Guaranteed.	Found.	Guaranteed.	
American Agricultural Chemical Co.	1	13.14	13.00	43.42	44.00	.36
Apothecaries Hall Co.	3	13.25	13.00	44.16	44.00	.32
Chilean Nitrate Sales Corp.	7*a*	14.35	14.00	14.35	14.00	.44
Eastern States Farmers' Exchange	1	13.01	13.00	42.94	44.00	.46
	2	13.20	13.00	43.74	44.00	.52
Old Deerfield Fertilizer Co., Inc.	1	12.96	13.00	43.52	44.00	.48
	2	13.00	13.00	44.24	44.00	.74

a Nitrate of Soda-Potash.

Castor Pomace and Linseed Meal

Manufacturer.	Brand.	Nitrogen.	
		Found.	Guaranteed.
American Agricultural Chemical Co.	Castor Pomace	4.78	4.50
	Castor Pomace	6.31	4.50
	Castor Pomace	5.75	4.50
Armour Fertilizer Works	Castor Pomace	5.96	4.50
	Castor Pomace	6.08	4.50
Bisbee Linseed Co.	Bisbee Old Process Linseed Meal	6.28	5.92
Eastern States Farmers' Exchange	Eastern States Castor Pomace	5.66	5.00
	Eastern States Castor Pomace	6.11	5.00
International Agricultural Corp.	International Castor Pomace	5.69	4.53
Old Deerfield Fertilizer Co., Inc.	Old Deerfield Castor Pomace	5.95	4.50

Dried Blood, Agrinite, Milorganite, Horn and Hoof Meal

Manufacturer and Brand.	Number of Samples.	Nitrogen.		Phosphoric Acid.	
		Found.	Guaranteed.	Found	Guaranteed.
American Agricultural Chemical Co.					
Agrinite	2	8.60	8.50	1.01	–
Apothecaries Hall Co.					
Horn and Hoof Meal	1	14.88	14.00	.38	–
Consolidated Rendering Co.					
Dried Blood	1	13.74	13.00	–	–
Dried Blood	1	13.48	13.00	–	–
New England Rendering Co.					
Brighton Blood Tankage	1	10.72	10.69	3.14	–
John Reardon & Sons Co.					
Rearco Dried Blood	2	12.39	12.00	1.02	–
Rogers & Hubbard Co.					
Dried Blood	1	13.67	12.00	.04	–
Sewerage Commission of the City of Milwaukee					
Milorganite	5	6.47	6.00	3.07*b*	2.75
Milorganite	1	6.22*a*	6.00	3.15*b*	2.75

a The total nitrogen was made up of the following forms: nitrates .47%; water soluble organic .24%; water insoluble organic 5.51%; the latter was found to be of good quality, testing 56.2 and 71.8 activity by the alkaline and neutral permanganate methods, respectively.

b The two analyses showed 2.56% and 2.69% available phosphoric acid, the guarantee being 2%

Phosphoric Acid Compounds.

Superphosphate, Precipitated Bone, and Basic Slag Phosphate.

Manufacturer and Brand.	Number of Samples.	Total Phosphoric Acid.	Available Phosphoric Acid	
			Found.	Guaranteed.
Acme Guano Co.				
Acme 16% Superphosphate	1	16.50	15.65	16.00
Acme 20% Superphosphate	1	21.32	20.19	20.00
American Agricultural Chemical Co.				
AA 16% Superphosphate	1	17.60	16.52	16.00
AA 16% Superphosphate	6	17.41	16.25	16.00
AA 16% Superphosphate	5	17.05	16.12	16.00
AA 20% Superphosphate	3	20.81	20.55	20.00
Co-Op 16% Superphosphate	5	17.49	16.33	16.00
Apothecaries Hall Co.				
Basic Slag	1	17.53	15.12	*a*
Superphosphate 16%	5	17.23	16.45	16.00
Superphosphate 20%	3	21.75	21.02	20.00
Armour Fertilizer Works				
Armours Big Crop Superphosphate 16%	7	17.25	16.37	16.00
Armours Big Crop Superphosphate 20%	6	21.19	20.18	20.00
Berkshire Chemical Co.				
Berkshire Superphosphate 16%	1	17.86	16.58	16.00
Davco 20% Granular Superphosphate	8	21.39	20.60	20.00
Consolidated Rendering Co.				
Superphosphate 16%	6	17.48	17.12	16.00
Superphosphate 16%	7	17.86	17.50	16.00
Superphosphate 20%	7	20.87	20.34	20.00
Eastern States Farmers' Exchange				
Eastern States Precipitated Bone	1	42.52	41.66	38.00
Eastern States 20% Superphosphate	10	21.39	20.52	20.00
Eastern States 40% Double Superphosphate	5	42.45	40.73	40.00
International Agricultural Corp.				
International Basic Slag	3	18.64	15.99	14.40
International 16% Superphosphate	6	17.00	16.67	16.00
International 16% Superphosphate	8	17.18	16.65	16.00
International Superphosphate 20%	7	20.88	20.37	20.00
Old Deerfield Fertilizer Co., Inc.				
Old Deerfield Precipitated Bone	1	39.32	38.86	38.00
Old Deerfield Precipitated Bone	1	44.16	43.30	38.00
Old Deerfield 16% Superphosphate	2	18.84	18.46	16.00
Old Deerfield 20% Superphosphate	1	21.20	20.72	20.00
Rogers & Hubbard Co.				
Superphosphate 16%	6	17.02	16.76	16.00
Superphosphate 20%	4	21.78	20.81	20.00
Standard Wholesale Phosphate & Acid Works, Inc.				
Standard 20% Superphosphate	1	20.02	19.89	20.00
C. P. Washburn Co.				
Superphosphate 16%	2	18.17	17.27	16.00

a Guaranteed 18% total phosphoric acid; available phosphoric acid guarantee not given.

Potash Compounds.

Sulfate of Potash-Magnesia.

Manufacturer.	Number of Samples.	Potash.		Magnesium Oxide.	Chlorine.
		Found.	Guaranteed.	Water Soluble Found	
American Potash Institute, Inc.	1*a*	27.02	26.00	14.22	1.14
Eastern States Farmers' Exchange	1	32.66	26.00	11.69	.82
N. V. Potash Export My., Inc.	1	26.57	25.00	10.93	1.74

a This was not registered in Massachusetts but was supplied to the Experiment Station for experimental purposes.

Muriate and High Grade Sulfate of Potash

Manufacturer.	Muriate of Potash.			High Grade Sulfate of Potash.			
	Number of Samples.	Potash.		Number of Samples.	Potash.		Chlorine.
		Found	Guaranteed.		Found.	Guaranteed.	
American Agricultural Chemical Co.	2	60.82	60.00	–	–	–	–
American Potash Institute, Inc.	1*a*	60.82	60.00	1*a*	49.79	48.00	1.96
Consolidated Rendering Co.	7	49.88	50.00	1	49.72	48.00	2.00
	5	60.57	60.00	1	49.15	48.00	1.92
	3	60.31	60.00	–	–	–	–
Eastern States Farmers' Exchange	6	60.27	60.00	3	49.15	48.00	1.62
N. V. Potash Export My., Inc.	7	50.36	50.00	1	49.31	48.00	2.06
	1	51.25	50.00	2	49.99	48.00	2.16
	7	60.01	60.00	6	49.14	48.00	1.90
	5	60.06	60.00	–	–	–	–
	1	60.29	60.00	–	–	–	–
	1	60.96	60.00	–	–	–	–
Old Deerfield Fertilizer Co., Inc.	1	60.16	60.00	–	–	–	–

Brands Showing Commercial Shortage of More than $1 per Ton

American Agricultural Chemical Co.	1*b*	**41.54**	50.00	–	–	–	–
Armour Fertilizer Works	1*c*	**57.25**	60.00	–	–	–	–

a This product was not registered in Massachusetts but was supplied to the Experiment Station for experimental purposes.

b Commercial shortage per ton $6.43. This was supposed to have been a 60% muriate standardized to fill an order for 50% muriate.

c Commercial shortage per ton $2.09.

Products Supplying Nitrogen and Phosphoric Acid.

Dry Ground Fish.

Manufacturer.	Number of Samples.	Nitrogen.		Phosphoric Acid.		Chlorine
		Found.	Guaranteed.	Found.	Guaranteed.	
American Agricultural Chemical Co.	1	9.78	9.46	6.25	5.00	.20
Apothecaries Hall Co.	2	9.59	9.46	7.73	5.00	.44
Berkshire Chemical Co.	2	9.29	9.46	8.58	5.00	.08
Consolidated Rendering Co.	1	8.75	8.52	8.44	8.00	1.24*a*
	1	9.53	9.00	5.57	4.00	.62
Eastern States Farmers' Exchange	1	10.08	9.00	5.60	5.00	.58
International Agricultural Corp.	2	8.99	9.00	9.05	4.00	.92
Old Deerfield Fertilizer Co., Inc.	1	9.79	9.46	7.81	5.00	.07
	5	9.85	9.46	5.11	5.00	.40
Olds & Whipple, Inc.	3	9.68	9.00	7.54	5.00	.14
	1	9.40	9.00	6.81	5.00	.14
Rogers & Hubbard Co.	2	9.49	9.46	6.44	5.00	.08

a This product was not sold as a fertilizer for growing tobacco.

Ammo-Phos.

Manufacturer.	Number of Samples.	Nitrogen.		Phosphoric Acid.		
				Total.	Available.	
		Found.	Guaranteed.		Found.	Guaranteed.
American Cyanamid Co.	1	11.73	11.00	50.88	49.67	48.00
	3	11.37	11.00	51.55	49.69	48.00
	1*a*	11.02	11.00	50.12	47.63	48.00

a 1937 stock.

Animal Tankage.

Manufacturer.	Number of Samples.	Nitrogen.		Total Phosphoric Acid.		Degree of Fineness.	
		Found.	Guaranteed.	Found.	Guaranteed.	Finer than 1/50 Inch.	Coarser than 1/50 Inch.
American Agricultural Chemical Co.	1	8.00	7.40	10.02	9.15	54.75	45.25
	1	10.33	10.00	7.31	6.87	46.41	53.59
	1	9.92	10.00	7.64	6.87	54.21	45.79
	5	9.96	10.00	7.37	6.87	49.48	50.52
Apothecaries Hall Co.	1	9.93	9.80	9.17	3.00	39.79	60.21
Armour Fertilizer Works	1	7.60	7.40	4.57	4.00	52.06	47.94
Consolidated Rendering Co.	3	7.68	7.41	12.91	9.15	34.94	65.06
	5	9.97	10.00	7.43	6.87	43.68	56.32
	6	10.30	10.00	7.46	6.87	44.63	55.37
A. W. Hunt	2	4.91	5.00	14.75	14.00	40.81	59.19
International Agricultural Corp.	3	7.50	7.40	13.13	9.15	50.45	49.55
N. Roy & Son	1	7.43	7.00	11.58	8.00	40.16	59.84
Woodard Bros.	1	4.66	4.50	20.98	18.00	38.58	61.42
Brand Showing Commercial Shortage of More than $1 per Ton							
Consolidated Rendering Co.	1*a*	7.88	8.22	4.22	10.00	39.38	60.62

a Commercial shortage per ton $5.50.

Ground Bone.

Manufacturer.	Number of Samples.	Nitrogen.		Total Phosphoric Acid.		Degree of Fineness.	
		Found.	Guaranteed.	Found.	Guaranteed.	Finer than 1/50 Inch.	Coarser than 1/50 Inch.
American Agricultural Chemical Co.	9	2.56	2.47	25.36	23.00	75.73	24.27
Apothecaries Hall Co.	4	2.61	2.47	23.40	22.00	65.82	34.18
	2	4.01	3.70	20.73	21.00	54.93	45.07
Armour Fertilizer Works	1a	3.83	3.70	23.76	20.00	64.81	35.19
	3	2.83	2.47	23.32	23.00	68.59	31.41
Berkshire Chemical Co.	2	2.33	2.05	28.58	25.00	80.91	19.09
Joseph Breck & Sons Corp.	2	2.50	2.47	24.37	22.88	76.04	23.96
Consolidated Chemical Industries, Inc.	1	.73	.82	34.24	32.00	97.93	2.07
Consolidated Rendering Co.	8	2.94	2.47	23.91	23.00	74.92	25.08
	3	3.86	4.00	22.19	20.00	49.25	50.75
Eastern States Farmers' Exchange	6	2.66	2.50	22.81	23.00	64.33	35.67
Thomas W. Emerson Co.	2	2.70	2.40	24.13	23.00	77.34	22.66
Goulard & Olena, Inc.	1	4.06	2.40	23.13	22.75	49.26	50.74
A. H. Hoffman, Inc.	2	3.58	3.70	23.99	20.00	58.33	41.67
International Agricultural Corp.	6	2.52	2.47	24.73	22.00	78.40	21.60
Old Deerfield Fertilizer Co., Inc.	2	2.74	2.47	27.77	22.00	75.36	24.64
Olds & Whipple, Inc.	2	2.62	2.47	22.45	22.00	78.09	21.91
John Reardon & Sons Co.	7	4.08	2.47	23.03	22.88	72.88	27.12
Rogers & Hubbard Co.	1	1.07	1.00	32.77	30.00	97.29	2.71
	8	2.63	2.47	24.76	23.00	69.22	30.78
	4	3.78	3.70	23.56	20.00	49.74	50.26
	2	3.96	3.70	25.99	24.70	92.45	7.55
F. Rynveld & Sons, Inc.	1	1.49	2.47	32.67	22.00	77.52	22.48
Standard Wholesale Phosphate & Acid Works, Inc.	2	2.49	2.47	24.86	23.00	68.34	31.66
Swift & Company Fertilizer Works	8	2.97	2.47	25.47	23.00	76.49	23.51
C. P. Washburn Co.	2	2.83	2.47	25.43	23.00	72.41	27.59

a Not registered in Massachusetts. Was in storage at Fall River warehouse for shipment into Rhode Island.

Pulverized Animal Manures.

Manufacturer.	Brand.	Number of Samples.	Total Nitrogen.		Total Phosphoric Acid.		Total Potash.		Organic Matter.	Moisture.
			Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.		
American Agricultural Chemical Co.	Pulverized Sheep & Goat Manure	8	1.30	1.25	1.29	1.00	3.57	2.00	29.09	17.06
Apothecaries Hall Co.	Liberty Domestic Sheep Manure	2	1.74	1.00	.76	.50	3.55	1.00	42.09	13.14
Armour Fertilizer Works	Sheep & Goat Manure	3	1.39	1.25	1.37	1.00	3.38	2.00	37.52	21.35
Atkins & Durbrow, Inc.	Henure	3	3.03	2.00	3.17	1.00	1.40	1.00	61.49	16.01
Joseph Breck & Sons Corp.	Breck's Rams Head Pulverized Sheep Manure	3	1.36	1.25	1.01	1.00	2.96	2.00	37.08	9.53
Buell Fertilizer Co.	Buell Peat Poultry Manure (Two-In-One)	3	2.96	2.50	3.81	2.50	1.58	1.50	63.21	16.18
Collins Seed Service Co.	Special Sheep Manure	2	1.91	2.25	1.37	1.00	3.45	3.00	35.18	8.84
Consolidated Rendering Co.	Corenco Sheep Manure	9	1.65	1.25	.95	1.00	3.42	2.00	38.18	23.03
Girvin Fertilizer Co., Inc.	Comonite (Dehydrated Cow Manure)	3	1.08	1.18	.76	.70	.40	.16	37.46	5.65
Goulard & Olena, Inc.	Van Horne's Sheep Manure	1	1.65	1.50	1.01	1.50	4.09	2.00	49.08	6.34
A. H. Hoffman, Inc.	Hoffman's Cow Manure (Dehydrated)	5	2.08	2.00	1.90	2.00	2.31	2.00	78.03	6.85
	Hoffman's Sheep Manure (Kiln-Dried)	5	1.94	1.85	1.21	1.00	2.07	2.00	48.61	5.79
International Agricultural Corp.	International Caribee Sheep Manure	7	1.70	1.02	1.43	.50	3.50	2.00	35.65	22.70
Natural Guano Co.	"Sheep's Head" Pulverized Sheep Manure	1	1.98	2.00	1.04	1.00	2.82	2.00	62.45	9.79
Norwood Fertilizer Co.	Screened Sheep Manure & Wool Waste, Norwood Brand	8	1.52	1.50	.76	.75	2.97	1.00	40.30	8.19
Old Deerfield Fertilizer Co., Inc.	Pulverized Sheep and Goat Manure (*a*)	1	1.66	1.25	1.34	1.00	2.70	2.00	54.58	7.95

Premier Poultry Manure Co.	Premier Brand Pulverized Poultry Manure	7	5.20	4.93	2.30	2.75	1.29	1.30	62.38	11.50
	Premier Brand Pulverized Sheep Manure	3	2.09	1.65	1.87	1.00	2.59	2.00	59.95	7.79
Pulverized Manure Co.	Wizard Brand Cow Manure	3	2.22	2.00	1.27	1.00	1.73	1.00	59.77	8.60
	Wizard Brand Pulverized Sheep Manure	3	2.12	2.00	1.70	1.00	3.89	2.00	67.61	9.15
John Reardon & Sons Co.	Rearco Sheep & Goat Manure	5	1.80	1.25	1.19	1.00	3.43	2.00	51.08	5.47
Rogers & Hubbard Co.	Sheep & Goat Manure	5	1.56	1.25	1.82	1.00	3.56	2.00	39.35	16.59
F. Rynveld & Sons, Inc.	Natural Moo Cow Fertilizer	1	1.45	1.42	1.21	.96	2.77	.44	50.20	6.04
Standard Wholesale Phosphate & Acid Works, Inc.	Sheep Manure	1	2.21	1.65	2.06	1.00	1.73	2.00	39.51	7.73
Stockdale Fertilizer Co.	Ovene (sheep manure)	2	2.39	2.00	1.68	1.00	2.46	2.00	63.65	9.37
Swift & Company Fertilizer Works	Swift's Pulverized Cattle Manure	1	2.07	1.85	1.58	.75	2.63	1.50	57.18	5.95
	Swift's Sheep Manure	4	2.02	1.85	1.45	1.00	2.82	1.75	52.95	5.79
Walker-Gordon Laboratory Co., Inc.	Bovung	5	2.02	2.00	2.13	2.00	2.54	2.00	78.34	6.09
W. W. Windle Co.	Natural Sheep Manure (Dusted from Wool)	1	1.96	1.75	.89	.38	5.90	5.25	38.74	7.97
Thomas Wood & Sons, Inc.	Woodgro Pure Cow Manure Dehydrated	1	2.27	2.00	4.16	2.00	2.63	3.00	57.52	7.75
F. A. Yeaw	Dehynure Brand Dehydrated Poultry Manure	1	3.69	3.00	4.29	4.00	2.35	2.00	61.72	16.32

a Stock carried over from 1937. Only two bags sold.

Miscellaneous Fertilizer Materials

Ground Tobacco Stems.

Manufacturer.	Moisture.	Nitrogen.		Phosphoric Acid.		Potassium Oxide.		Organic Matter.
		Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.	
Apothecaries Hall Co.	4.38	1.54	1.16	.51	–	4.83	4.00	55.68
H. Fendrich (*a*)	9.11	2.98	1.00	.66	–	2.83	1.50	54.31

a Purchased by R. B. Lapthorn, Bridgewater, Mass., for own use. Shipped by H. Fendrich Evansville, Ill.

Calcined Kieserite

Manufacturer	Number of Samples	Magnesium Oxide		
		Total	Water Soluble	
			Found	Guaranteed
Eastern States Farmers' Exchange	2	30.90	30.18	30.00

Commercial Peat Products.

Manufacturer and Brand.	Number of Samples.	Water.	Organic Matter.	Mineral Matter.	Nitrogen.	
					Found.	Guaranteed.
Brague, Inc.						
Hi shale Leafmold	1	56.47	39.01	4.52	.97	.50
Florida Humus Co.						
Florida Humus	3	41.51	53.49	5.00	2.52	2.18

Cotton Hull Ashes and Wood Ashes

Manufacturer and Brand	Moisture	Phosphoric Acid		Potassium Oxide		Calcium Oxide	Magnesium Oxide	Manganese	Insoluble Matter
		Found	Guaranteed	Found	Guaranteed				
Apothecaries Hall Co.									
Cotton Hull Ashes	4.64	2.56	–	36.46	25.00	8.59	3.75	.024	10.50
Cotton Hull Ashes	4.89	2.63	–	35.86	25.00	8.75	3.67	.025	10.21
Berkshire Chemical Co.									
Berkshire Cotton Hull Ashes	3.04	2.11	–	28.63	30.00	8.18	3.26	.015	29.98
Berkshire Cotton Hull Ashes	3.42	2.27	–	37.50	30.00	10.15	3.51	.022	13.50
Eastern States Farmers' Exchange									
Eastern States Cotton Hull Ashes	4.83	2.61	–	31.02	30.00	9.75	4.15	.025	16.76
J. W. Joynt									
Canada Hard Wood Ashes	6.74	2.42	1.00	5.50	3.00	35.72	4.00	.50	7.32
Canada Hard Wood Ashes	8.99	2.32	1.00	5.34	3.00	35.46	4.14	.57	6.90
Canada Hard Wood Ashes	4.81	2.26	1.00	4.83	3.00	34.85	3.60	.47	9.64
Old Deerfield Fertilizer Co., Inc.									
Old Deerfield Cotton Hull Ashes	1.49	2.04	–	29.88	25.00	16.43	8.42	.02	8.92
Old Deerfield Cotton Hull Ashes	4.02	2.04	–	32.97	30.00	11.54	5.87	–	10.95
Old Deerfield Cotton Hull Ashes	2.87	2.07	–	30.56	30.00	13.72	6.59	.019	6.98
Rogers & Hubbard Co.									
Cotton Hull Ashes	9.48	2.72	–	33.99	30.00	8.05	3.94	.025	9.28

Colloidal Phosphate with Mineral Colloids

This finely divided raw mineral phosphate was registered by Soil Builders, Inc., Division of Colloidal Products of America, Inc., Orlando, Florida. It analyzed as follows:

	Percent Found	Percent Guaranteed
Moisture	5.80	
Total phosphoric acid	23.15	22.00
Phosphoric acid dissolved by neutral citrate of ammonia (so-called available phosphoric acid)	4.43	
Phosphoric acid insoluble in neutral citrate of ammonia	18.72	

We believe that the evaluation of this product should depend largely upon the effectiveness of its phosphoric acid in growing crops. Vegetation experiments show but little difference between this product and finely ground Tennessee rock phosphate, so far as availability of the phosphoric acid is concerned. Tennessee rock phosphate containing 72 percent bone phosphate of lime (32.95 percent P_2O_5) was quoted in both the Oil, Paint & Drug Reporter and Chemical Markets & Chemical Industries at $4.50 per ton in bulk at the mines. An allowance of 20 percent overhead, $5.00 for freight, and $1.50 for bags, would bring the cost at northern points of distribution to $11.90 per ton, or 36 cents per unit of P_2O_5. At this rate the Colloidal Phosphate with Mineral Colloids, analyzing 23.15 percent phosphoric acid, should sell at northern points for $8.33 a ton. Two of the four lots sampled by our inspectors were being sold at $32.00 a ton, which is more than the average cash cost of a ton of 3–10–6 commercial fertilizer during 1938.

Menderth

Produced and sold by Menderth, Inc., 126 State St., Boston, Mass.

Plant Food Elements	Found Soluble in Strong Hydrochloric Acid	Guaranteed
Potassium oxide	1.21	3.00
Phosphoric acid	.12	.13
Calcium oxide	2.08	3.00
Magnesium oxide	2.25	2.00

Note: Commercial valuation per ton not over $1.50.

DIRECTORY OF MANUFACTURERS WHO REGISTERED FERTILIZER FOR SALE IN MASSACHUSETTS IN 1938.

Acme Guano Co., 416 Munsey Bldg., Baltimore, Md.
Agricultural Laboratories, Inc., 3415 Milton Ave., Columbus, Ohio.
American Agricultural Chemical Co., 285 River St., North Weymouth, Mass.
American Cyanamid Co., 30 Rockefeller Plaza, New York, N. Y.
Apothecaries Hall Co., Benedict St., Waterbury, Conn.
Armour Fertilizer Works, 120 Broadway, New York, N. Y.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Atkins & Durbrow, Inc., 165 John St., New York, N. Y.
Ernest J. Bantle, Glastonbury, Conn.
Barrett Co., 40 Rector St., New York, N. Y.
F. A. Bartlett Tree Expert Co., 60 Canal St., Stamford, Conn.
Belmont Gardens, 170 Brighton St., Belmont, Mass.
Berkshire Chemical Co., Bridgeport, Conn.
Bisbee Linseed Co., Inc., 146 Church St., Amsterdam, N. Y.
Bisbee Linseed Co., 2100 Lincoln Liberty Bldg., Philadelphia, Penn.

Brague, Inc., South St., Hinsdale, Mass.
Joseph Breck & Sons Corp., 85 State St., Boston, Mass.
Buell Fertilizer Co., Exeter, N. H.
C & R Sales Co., 45 Chatham St., Worcester, Mass.
Central Soya Co., Inc., Fort Wayne, Ind.
Chemi-Grow Ltd., 257 Werdin Place, Los Angeles, Cal.
Chilean Nitrate Sales Corp., 120 Broadway, New York, N. Y.
Clay & Son, Ltd., Stratford, London, England.
Collins Seed Service Co., 131 Beverly St., Boston, Mass.
Consolidated Chemical Industries, Inc., Woburn, Mass.
Consolidated Rendering Co., 178 Atlantic Ave., Boston, Mass.
Davey Tree Expert Co., Kent, Ohio.
Dehydrating Process Co., 60 Mt. Washington Ave., Boston, Mass.
E. I. du Pont de Nemours & Co., Wilmington, Del.
Eastern States Farmers' Exchange, Springfield, Mass.
Thomas W. Emerson Co., 215 State St., Boston, Mass.
Excell Laboratories, 2625 Indiana Ave., Chicago, Ill.
Florida Humus Co., Zellwood, Florida.
Flower City Charcoal Co., 135–49 Colvin St., Rochester, N. Y.
Flower City Plant Food Co., Inc., 24 Church St., Pittsford, N. Y.
Foodndrink Fertilizer Co., 25 Fair Oaks St., Cambridge, Mass.
Ford Motor Co., 3674 Schaefer Road, Dearborn, Mich.
H. L. Frost & Higgins Co., 20 Mill St., Arlington, Mass.
Garden Hose Spray Co., Inc., 292 Main St., Cambridge, Mass.
Girvin Fertilizer Co., Inc., 1226 West Forsyth St., Jacksonville, Florida.
Goulard & Olena, Inc., 140 Liberty St., New York, N. Y.
Thomas J. Grey Co., 16 South Market St., Boston, Mass.
Hartney-Amalia, Inc., 581 Boylston St., Boston, Mass.
Allen Hersom Co., 74 Howard Ave., New Bedford, Mass.
A. H. Hoffman, Inc., Landisville, Penn.
Humphreys-Godwin Co., Memphis, Tenn.
A. W. Hunt, Weston, Mass.
Independent Manufacturing Co., Wheatsheaf Lane & Aramingo Ave., Philadelphia, Penn.
International Agricultural Corp., 38 Chauncy St., Boston, Mass.
J. W. Joynt, Lucknow, Ontario, Canada.
Spencer Kellogg & Sons, Inc., 98 Delaware Ave., Buffalo, N. Y.
L. B. Lovitt & Co., Memphis, Tenn.
McClain Brothers Co., 263 Clark Bldg., Canton, Ohio.
Menderth, Inc., 126 State St., Boston, Mass.
Miller Chemical & Fertilizer Corp., 920 South Caroline St., Baltimore, Md.
Monsanto Chemical Co., Merrimac Division, Everett Station, Boston, Mass.
Natural Guano Co., Aurora, Ill.
New England Rendering Co., Rear 39 Market St., Brighton, Mass.
New England Toro Co., 1121 Washington St., West Newton, Mass.
N. V. Potash Export My., Inc., of Amsterdam, Holland, 19 West 44 St., New York, N. Y.
Norwood Fertilizer Co., 189 Oxford St., Lynn, Mass.
Old Deerfield Fertilizer Co., Inc., South Deerfield, Mass.
Olds & Whipple, Inc., 168 State St., Hartford, Conn.
Perkins Oil Co., 727 Beale Ave., Memphis, Tenn.
F. G. Phillips Co., 37 Circuit Road, Dedham, Mass.
Plantabbs Corp., Baltimore, Md.
Plantspur Products Co., Inc., Ridgefield, N. J.
Premier Poultry Manure Division, North American Car Corp., 327 South LaSalle St., Chicago, Ill.
Pulverized Manure Co., 503 Exchange Bldg., Union Stock Yards, Chicago, Ill.
John Reardon & Sons Co., 51 Waverly St., Cambridge, Mass.
Rogers & Hubbard Co., Portland, Conn.
N. Roy & Son, Rear 618 Newport Ave., South Attleboro, Mass.
F. Rynveld & Sons, Inc., 149-155 West 24th St., New York, N. Y.
Salem Chemical & Supply Co., Salem, Mass.
O. M. Scott & Sons Co., Marysville, Ohio.
Sewerage Commission of the City of Milwaukee, P. O. Box 2079, Milwaukee, Wis.
M. L. Shoemaker & Co., Inc., 3600 North Delaware Ave., Philadelphia, Penn.
Soil Builders, Inc., Division of Colloidal Products of America, Inc., 319 First National Bank Bldg., Orlando, Florida.
Standard Wholesale Phosphate & Acid Works, Inc., 1600 Mercantile Trust Bldg., Baltimore, Md.
Stockdale Fertilizer Co., Morris, Ill.
Sutton & Sons Ltd., Reading, England.
Swift & Company Fertilizer Works, 1305 Standard Oil Bldg., Baltimore, Md.
Swift & Company Oil Mills, Atlanta, Ga.
F. Sylvester & Son, 86 Baxter St., Melrose, Mass.
Synthetic Nitrogen Products Corp., 285 Madison Ave., New York, N. Y.
Tennessee Corp., Lockland, Ohio.
Universal Chemical Co., 106 Ontario St., Lynn, Mass.
Virginia-Carolina Chemical Corp., Richmond Trust Bldg., Richmond, Va.
Walker-Gordon Laboratory Co., Inc., Plainsboro, N. J.
C. P. Washburn Co., Middleboro, Mass.
W. W. Windle Co., 95 West Main St., Millbury, Mass.
Winslow Nurseries, 1808 Great Plain Ave., Needham, Mass.
Thomas Wood & Sons, Inc., 12–14 Midland Ave., Montclair, N. J.
Woodard Bros., Greenfield, Mass.
Woodruff Fertilizer Works, Inc., Orange, Conn.
F. H. Woodruff & Sons, Milford, Conn.
F. A. Yeaw, 51 Union St., Greenfield, Mass.

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3m-11-'38. No. 5567

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

CONTROL SERIES BULLETIN NO. 96 NOVEMBER 1938

Seed Inspection

By F. A. McLaughlin

This Report, the eleventh in seed control service, is a record of work delegated to the Massachusetts Agricultural Experiment Station during 1938, by the Commissioner of Agriculture, who is named in the Act as Administrative Officer (Acts and Resolves of 1927, Chapter 274).

Massachusetts State College

Amherst, Mass.

ANNOUNCEMENT

The Seed Testing Laboratory will allow ten units of work free of charge, during any calendar year, to any resident firm or citizen of Massachusetts.

Units are rated as follows:

	Units
Purity analysis (red clover, timothy, etc.)	1
Purity analysis (bluegrass, orchard grass, etc.)	2
Purity analysis of a mixture of seeds (depending upon the number of kinds in the mixture)	4-10
Examination for noxious weeds (sample of 4 oz. or less)	2
Identification of seed or plant	1
Cleaning tobacco seed (4 oz. or less)	2
Germination test (4 x 100 seeds of any seed not chaffy or requiring purity analysis)	1
Germination test (soil, 2x100 seeds)	1
Germination test (chaffy grasses or seeds requiring purity analysis)	2

Fees for work in excess of the ten free units allowed to a citizen or resident firm of Massachusetts are as follows:

Germination test of all crop seeds except grasses	$0.25
Germination test of timothy	.25
Germination test of all other grasses	.50
Purity analysis of cereals	.50
Purity analysis of timothy	.75
Purity analysis of all other grasses	1.00
Purity analysis of all other crop seeds	.75
Purity analysis of mixtures of not more than 2 kinds of agricultural seeds	1.00
Purity analysis of special mixtures, including lawn grasses and pasture mixtures—a charge sufficient to cover the actual cost of working the sample, depending entirely upon the character of the sample. Minimum charge	1.25

In no case will the final report be rendered until all fees are paid.

SEED INSPECTION

By F. A. McLaughlin[1]

CONTENTS

SEED LAW OF MASSACHUSETTS

The Massachusetts Seed Law, originally enacted in 1927 and last amended in 1938, is here given in its present form. Although in effect in 1938, it will not be enforced until January 1, 1939, thereby giving sufficient time for seedsmen to become familiar with new provisions of the 1938 amendment and to comply with required procedure.

Daniel J. Curran, Agriculturist
State Department of Agriculture

Chapter 94 As Amended by Chapter 288 of the Acts of 1937 and Chapter 363 of the Acts of 1938

SECTION 1. "Agricultural seeds" or "agricultural seed" in sections two hundred and sixty-one A to two hundred and sixty-one L, inclusive, the seeds of Canada Blue grass, Kentucky Blue grass, Brome grass, fescues, millets, tall meadow oat grass, orchard grass, red top, Bent grasses, Italian rye grass, perennial rye grass, kaffir corn, sorghum, Sudan grass, timothy, alfalfa, clovers, Canada field peas, cowpeas, soy-beans, mangels, vetches, and other grasses and forage plants, buckwheat, flax, rape, barley, field corn, oats, rye, wheat and other cereals which are sold, offered or exposed for sale within this commonwealth for use for seeding purposes therein.

"Vegetable seeds," in sections two hundred and sixty-one A to two hundred and sixty-one L, inclusive, the seeds of those crops that are usually grown in Massachusetts in gardens or on truck farms and generally known and sold under the name of "vegetable seeds."

"Noxious weed seeds," in sections two hundred and sixty-one A to two hundred and sixty-one L, inclusive, the seeds of quack grass (Agropyron repens), Canada thistle (Cirsium Arvense), dodder species (Cuscuta Spp.), wild mustard species (Brassica Spp.) and English plantain (Plantago lanceolata).

"Weed seeds," in sections two hundred and sixty-one A to two hundred and sixty-one L, inclusive, all seeds other than agricultural seeds and vegetable seeds as defined in this section, and other than flower seeds.

"Inert matter," in sections two hundred and sixty-one A to two hundred and sixty-one L, inclusive, all foreign matter other than seeds.

"Lot," in sections two hundred and sixty-one A to two hundred and sixty-one L, inclusive, contents of any container, open or sealed, from which or in which agricultural seeds are sold, offered or exposed for sale.

[1] Assisted by Miss Jessie L. Anderson, Technical Assistant.

SECTION 261A. Every lot of agricultural seeds, except as otherwise provided in sections two hundred and sixty-one B to two hundred and sixty-one L, inclusive, shall have affixed thereto, in a conspicuous place, on the exterior of the container of such agricultural seeds, a plainly written or printed tag or label in the English language, stating:

(a) The commonly accepted name and variety of such agricultural seeds.

(b) The approximate percentage, by weight, of purity; meaning, the freedom of such agricultural seeds from inert matter and from other seeds distinguishable by their appearance.

(c) The approximate total percentage, by weight, of weed seeds.

(d) The name and approximate number per ounce of each kind of noxious weed seeds, which are present, singly or collectively, as follows: (1) in excess of one seed in each five grams of seeds of grasses, alfalfa and clovers; (2) in excess of one seed in each twenty-five grams of millets, rape, Sudan grass and other seeds of similar size not specified in subdivision (1) or (3) of this paragraph; (3) in excess of one seed in each hundred grams of wheat, oats, rye, barley, buckwheat, vetches, soybeans, cowpeas and other seeds as large or larger than wheat.

(e) The approximate percentage of germination of such agricultural seed together with the month and year said seed was tested.

(f) Name and address of the vendor of such agricultural seed.

SECTION 261B. Mixtures of agricultural seeds which contain not more than two kinds of such seeds which are present in excess of five per cent by weight of each kind, shall have affixed thereto, in a conspicuous place on the exterior of the container of such mixture of seeds, a plainly written or printed tag or label, in the English language, stating:

(a) That such seed is a mixture.

(b) The name, variety and approximate percentage by weight of each kind of agricultural seed present in such mixture in excess of five per cent by weight of the total mixture.

(c) Approximate total percentage by weight of weed seeds.

(d) The name and approximate number per ounce of noxious weed seeds which are present singly or collectively in excess of one seed in each fifteen grams of such mixture.

(e) Approximate percentage of germination of each kind of agricultural seed present in such mixture in excess of five per cent by weight, together with the month and year said seed was tested.

(f) Name and address of the vendor of such mixture.

SECTION 261C. Mixtures of agricultural seeds, except as specified in section two hundred and sixty-one B, shall have affixed thereto in a conspicuous place on the exterior of the container of such mixture a plainly written or printed tag or label in the English language stating:

(a) That such seed is a mixture.

(b) The name, variety and approximate percentage by weight of each kind of agricultural seed which is present in excess of five per cent or more by weight of the total mixture.

(c) The approximate total percentage by weight of weed seeds.

(d) The approximate percentage of germination of each kind of agricultural seed present in each mixture in excess of five per cent by weight of the entire mixture, together with the month and year said seed was tested.

(e) The approximate percentage by weight of inert matter.

(f) The name and approximate number per ounce of each kind of noxious weed seeds which are present singly or collectively in excess of one seed in each fifteen grams of such mixture.

(g) Name and address of the vendor of such mixture.

SECTION 261D. Each separate container of vegetable seeds shall have affixed thereto in a conspicuous place on the exterior of the container a plainly written or printed tag or label in the English language stating:

(a) The kind of seed and variety.

(b) The approximate percentage of germination of each vegetable seed, together with the month and year said seed was tested, provided such seed germination is less than the standard germination test for such seed for the current year, as determined by the director of the Massachusetts Agricultural Experiment Station and approved by the commissioner of agriculture.

(c) The name and address of the vendor, packer or processor of such vegetable seeds.

Each separate container of flower seeds shall have affixed thereto in a conspicuous place on the exterior of the container a plainly written or printed tag or label stating:

(a) The kind of seed and variety.

(b) The name and address of the vendor, packer or processor of such flower seeds.

SECTION 261E. Agricultural seeds or mixtures thereof may be marked "not tested" and seeds so marked or labeled shall have affixed thereto in a conspicuous place on the exterior of the container of each lot of such "not tested" seeds, a plainly written or printed tag or label in the English language stating:

(a) That such seed is "not tested".

(b) The name and address of the vendor of such "not tested" seeds.

When any agricultural seeds or mixtures thereof or vegetable seeds or flower seeds are sold in bulk directly to and in the presence of the purchaser from a box or other container, the tag or label required by any provision of sections two hundred and sixty-one A to two hundred and sixty-one E, inclusive, may be affixed in a conspicuous place on the exterior of the box or other container from which such seeds are sold, instead of on the wrapper or other container of the package delivered to the purchaser.

SECTION 261F. Agricultural seeds or mixtures thereof shall be exempt from the provisions of sections two hundred and sixty-one A to two hundred and sixty-one L, inclusive:

(a) When sold to merchants to be recleaned before being sold or exposed for sale for use for seeding purposes.

(b) When in storage for the purpose of recleaning or not possessed, sold or offered for sale for use for seeding purposes within the commonwealth.

SECTION 261G. The commissioner of agriculture and his duly authorized assistants shall have authority to enforce sections two hundred and sixty-one A to two hundred and sixty-one L, inclusive, and to prosecute all violations thereof. Before any prosecution is begun by said commissioner or any of his duly authorized assistants, the parties concerned shall be given an opportunity to be heard before said commissioner or a person designated by him for such purpose. The parties concerned shall be given a reasonable notice of the hearing, specifying the day, hour and place thereof, and accompanied by a description of the alleged violation.

SECTION 261H. The commissioner of agriculture, either in person or by his assistants, shall have free access at all reasonable hours to each building or other place where agricultural seeds or mixtures thereof are stored, sold or offered

or exposed for sale for the purpose of inspection of such seeds and, upon tendering the market price, may take samples of such agricultural seeds or mixtures thereof for tests and analyses. Such samples shall be thoroughly mixed and two official samples taken therefrom; each official sample shall be securely sealed. Such official samples shall be submitted by said commissioner or his deputy to the director of the Massachusetts agricultural experiment station, in this and the four following sections called the director, for testing and analyzing. One of such samples shall be held by the director or his duly authorized assistant at the disposal of the person named on the label as the vendor of the agricultural seed samples, for six months after the results of the analysis, have been reported as provided in the following section, and the other sample retained by the director or such assistant for analysis.

The commissioner of agriculture may order that any agricultural seeds or mixtures thereof, vegetable seeds or flower seeds, the containers of which he finds are not tagged or labeled, as provided in sections two hundred and sixty-one A to two hundred and sixty-one E, inclusive, or which do not conform to the statements made upon the tags or labels attached to the containers thereof, be withheld from sale until properly tagged or labeled or until made to conform to the tags or labels thereon. Any person aggrieved by such an order may, within ten days of the entry thereof, appeal therefrom by petition to the superior court in the county where he resides or has his usual place of business or in the county of Suffolk. The court shall hear such petition speedily in accordance with the usual course of procedure in equity, and may affirm, modify or revoke such order. Such order shall remain in force until so modified or revoked.

SECTION 261I. The director shall cause such tests and analyses as he may specify to be made of samples collected under the preceding section in order to determine the quality of the seeds contained in such samples. The results of all such analyses shall be reported to the commissioner of agriculture. To enable the director to determine the trueness to type or variety of vegetable and other seeds he shall provide that field tests be made of such samples of seeds as he may designate and may publish the results of all such tests and analyses as are made in accordance with the provisions of this section.

SECTION 261J. The word "approximate" as used in sections two hundred and sixty-one A to two hundred and sixty-one L, inclusive, shall be defined in rules and regulations promulgated by the director.

SECTION 261K. Any person residing or doing business in this commonwealth shall have the privilege of submitting to the director samples of seeds for test and analysis, subject to such rules and regulations as may be adopted by the director, including a reasonable charge or fee for such test and analysis. Receipts under this section shall be paid into the treasury of the commonwealth.

SECTION 261L. Whoever sells, offers or exposes for sale any lot of agricultural seeds or mixtures thereof or vegetable seeds or flower seeds, without complying with the requirements of sections two hundred and sixty-one A to two hundred and sixty-one K, inclusive, applicable thereto, or in violation of any order, under section two hundred and sixty-one H, of the commissioner of agriculture, or of the superior court if an appeal is taken, or whoever falsely marks or labels any such seeds or mixtures or impedes, obstructs or hinders the commissioner of agriculture or any of his duly authorized agents, or the director or any of his duly authorized assistants, in the discharge of the authority or duties conferred or imposed by any provision of said sections, shall be punished by a fine of not more than five hundred dollars.

MASSACHUSETTS VEGETABLE SEED STANDARDS FOR 1939

SECTION 261D (b) of the Seed Law requires that a set of standards for germination of vegetable seeds be determined each year by the Director of the Massachusetts Agricultural Experiment Station and approved by the Commissioner of Agriculture. The following set of standards for 1939 has been so determined and approved:

KIND OF SEED	GERMINATION STANDARD %
Asparagus	65
Beans	
Large—seeded Limas	70
Small—seeded Limas	80
Other varieties, not including Limas	80
Beets	65
Broccoli	75
Brussels Sprouts	70
Cabbage	75
Carrot	55
Cauliflower	75
Celeriac	55
Celery	55
Chard, Swiss	65
Chicory	65
Citron	65
Collard	75
Corn, sweet	75
Cress, curled	70
Cress, water	40
Cucumber	80
Dandelion	55
Dill	60
Egg Plant	60
Endive	70
Kale	75
Kohl Rabi	75
Leek	60
Lettuce	80
Melons	
Muskmelon	80
Watermelon	70
Okra	50
Onions	75
Parsley	60
Parsnip	60
Peas	80
Peppers	60
Pumpkin	75
Radish	80
Rutabaga	75
Sage	60
Salsify	70
Spinach (not including New Zealand)	60
Squash	75
Summer Savory	60
Sweet Basil	50
Sweet Fennel	60
Sweet Marjoram	65
Thyme	60
Tomato	80
Turnip	80

In the enforcement of the law no tolerances will be allowed below the minimum standards adopted.

"APPROXIMATE"

Section 261J. The word "approximate" as used in sections two hundred and sixty-one A to two hundred and sixty-one L, inclusive, shall be defined in rules and regulations promulgated by the director.

On account of the unavoidable variations which occur between two analyses or tests and likewise between the label statements and those found by subsequent analysis, it is necessary to make allowance for these expected variations. The allowance or tolerances permitted under the meaning of the word "approximate" as applied to both purity and germination statements before a lot of seed is reported, published, or indicated as being below the standard of guarantee or markings, shall be those provisionally defined in the formulae adopted by the Association of Official Seed Analysts and found in the "Rules of Seed Testing", except that in the enforcement of Section 261D of the Seed Law, no tolerances will be allowed below the minimum germination standards adopted.

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS

From December 1, 1937, to December 1, 1938, the Seed Laboratory received and worked 2424 samples of seed. Of these, 1027 were official samples collected by the State Department of Agriculture from the open markets in 84 towns and cities of Massachusetts; and 1397 were samples sent in by seedsmen, farmers, and the American Can Company. Classification of these samples is shown in the following summary. The total number of tests required for the 2424 samples was 3372, 857 for purity and 2515 for germination.

Number of Samples		NUMBER OF TESTS Purity	Germination
444	Field Crops for Purity and Germination	444	444
5	Field Crops for Purity Only	5	
7	Field Crops for Germination Only		7
143	Lawn Mixtures for Purity, Germinations involving 504 ingredients	143	504
71	Lawn Mixtures for Purity Only	71	
1	Lawn Mixture for Germination Only		1
1342	Vegetable Seeds for Germination		1342
152	Flower Seeds for Germination Only		152
194	Flower Seeds for Purity Only	194	
15	Tree Seeds for Germination Only		15
50	Tobacco Seeds for Germination Only		50
2424		857	2515

Explanation of the Tables

In these tables the seeds are listed in alphabetical order by groups, each group containing only those seeds, the sale of which is regulated by a definite section of the Massachusetts Seed Law. Section 261-A of the Acts and Resolves of 1927, Chapter 274, defines the group from Alfalfa to Wheat, inclusive; Section 261-B, Mixtures; Section 261-C, Special Mixtures; and Section 261-D, Vegetables.

The number preceding each analysis is for identification and reference. The line to the right of the letter "L" gives information copied from the label; that to the right of "F", what was found in the laboratory analysis. Attention is called to certain irregularities by the following:

The asterisk (*) shows violation in labeling.

Boldface type indicates low purity, low germination, excessive weed seed, noxious weeds not declared, or excessive inert material, depending upon the column in which it is found.

Other deficiencies are enumerated as follows:

(1) Noxious weeds found.

(2) Old seed (as shown by given date or by correspondence with the wholesaler).

(3) Ingredient found, but not declared.

(4) Ingredient declared, but not found.

(5) Ingredient declared, but percentage found after adding proper tolerance is less than 5%.

(6) Term not specific.

(7) Wholesaler claims this seed not sold by him.

The letter "R" after the germination percentage in the table of vegetable seeds indicates that the sample has received one or more retests.

All lots of seed included in this report were tested according to the rules for Seed Testing adopted by the Association of Official Seed Analysts.

"Tolerance" is applied to both purity and germination, except in those tables which list seeds falling under sections of the law not requiring purity or germination on the label. For the application of "Purity Tolerance", the sample is considered as made up of two component parts: (1) the component being considered, and (2) the balance of the sample. The tolerance in percentage allowed for each component shall be two-tenths of one per cent (0.2%) plus twenty per cent (20%) of the lesser of the two parts. "Germination Tolerance" has been applied between a given germination and the result of the germination test as follows:

GIVEN GERMINATION	ALLOWABLE VARIATION (%)
90 or over	6
80 or over, but less than 90	7
70 or over, but less than 80	8
60 or over, but less than 70	9
Less than 60	10

After December 31, 1938, no tolerance will be allowed for vegetable seed below the minimum germination standards adopted.

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test
	(†) ALFALFA							
	ARTHUR R. CONE, Buffalo, N. Y.							
1366	Grimm Alfalfa, No. 28-76	L.	99.26	.06	—	—	80–10	12/1937
	Sunshine Feed Stores, Greenfield	F.	99.05	.06	.08	.81	75–16	7/1938
	EASTERN STATES FARMERS' EXCHANGE, Worcester, Mass.							
1039	Variegated Canada Grown (C)	L.	99.30	.10	.30	.30	75–15	12/1937
	Eastern States Farmers' Exchange, Worcester	F.	99.39	.07	.27	.27	84–11	7/1938
	FITCHBURG HARDWARE CO., Fitchburg, Mass.							
1243	Grimm Alfalfa	L.	99.34	.28	—	—	75–18	11/1937
	Fitchburg Hardware Co., Fitchburg	F.	99.76	.14	.02	.08	81–1	7/1938
	PERRY SEED CO., Boston, Mass.							
1684	Grimm Alfalfa, No. 27-720 (C)	L.	99.42	.24	—	—	69–25	2/1938
	Perry Seed Co., Boston	F.	99.67	.10	.08	.15	63–32	7/1938
	ROSS BROS. CO., Worcester, Mass.							
1005	Grimm Alfalfa	L.	99.70	.15	—	—	91	1/1938
	Ross Bros. Co., Worcester	F.	99.58	.18	—	.24	**70–21**	7/1938
	WM. G. SCARLET & CO., Baltimore, Md.							
1114	Grimm Alfalfa, No. 446	L.	99.00	.55	—	—	75–15	3/1937
	C. P. Washburn Co., Middleboro	F.	99.61	.25	.14	—	87–5	7/1938
	STANFORD SEED CO., Buffalo, N. Y.							
1019	Grimm Alfalfa, Idaho Grown, No. 3929	L.	98.52	.18	—	—	(84.50) (10.50)	2/1938
	City Grain Co., Marlboro	F.	98.94	.10	.06	.90	77–16	7/1938
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
1228	Grimm Alfalfa, Idaho Blue Tag, No. 2205	L.	99.62	.02	—	—	75–15	1/1935
	Farm Service Co., Leominster	F.	99.66	.22	.10	.02	81–12	7/1938
	BARLEY							
	W. F. COBB CO., Franklin, Mass.							
1807	Six Row Barley	L.	*	—	—	—	*	*
	W. F. Cobb Co., Franklin	F.	99.56	—	.06	.38	96	6/1938

	EASTERN STATES FARMERS' EXCHANGE, West Springfield, Mass.							
2031	Barley	L.	98.00	.30	1.20	.50	90	12/1937
	Essex Co. Cooperative Association, Topsfield	F.	98.38	.26	.40	.96	93	6/1938
	BENT GRASS							
	DURYEA SEED CO., New York, N. Y.							
1448	Colonial Bent	L.	98.00	.50	—		90	10/1937
	Fraser's, Wellesley	F.	**95.59**	.19	4.22	—	85	6/1938
	EASTERN STATES FARMERS' EXCHANGE, Worcester, Mass.							
1040	R. I. Colonial Bent, Grown in Oregon	L.	98.50	.15	1.20	.15	90	12/1937
	Eastern States Farmers' Exchange, Worcester	F.	98.71	.02	1.27	Trace	91	5/1938
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.							
2033	R. I. Bent, Grown in Oregon	L.	98.00	.50	1.95	—	90	6/1937
	Essex Co. Cooperative Association, Topsfield	F.	99.35	.02	.63	—	91	6/1938
	MIDDLESEX COUNTY FARM BUREAU, Waltham, Mass.							
1888	Colonial Bent	L.	96.00	.08	2.85	—	90	1/1938
	Middlesex County Farm Bureau, Waltham	F.	**88.04**	.32	11.89	.25	90	6/1938
	PERRY SEED CO., Boston, Mass.							
1688	Astoria Bent, No. N.P. 834391	L.	96.50	.10	3.40	—	88	4/1938
	Perry Seed Co., Boston	F.	95.67	.06	4.20	.07	88	6/1938
	BLUEGRASS							
	APOTHECARIES HALL CO., Waterbury, Conn.							
1704	Kentucky Bluegrass	L.	98.00	.38	—		90	2/1938
	Raymond Bros. Co., Natick	F.	**91.01**	.20	8.69	.10	89	7/1938
	ARTHUR R. CONE, Buffalo, N. Y.							
1805	Kentucky Bluegrass	L.	86.00	1.00		—	83	3/1937
	Montgomery Hardware Co., Ayer	F.	84.38	1.06	14.46	.10	52	7/1938
	DURYEA SEED CO., New York City, N. Y.							
1449	Kentucky Bluegrass	L.	85.00	.20	—	—	80	1/1938
	Fraser's, Wellesley	F.	83.93	.30	15.68	.09	81	7/1938

(†) E — 1% of seed stained green, indicating Northern European origin.
C — 1% of seed stained violet indicating Canadian origin.
All other samples of Alfalfa in this table are Domestic origin.

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test
	BLUEGRASS — Concluded							
	THOMAS W. EMERSON CO., Boston, Mass.							
1912	Kentucky Bluegrass	L.	85.00	*	—	—	75	*/1938
	Frank Howard, Inc., Pittsfield	F.	84.67	.30	14.97	.06	73	6/1938
	FITCHBURG HARDWARE CO., Fitchburg, Mass.							
1251	Kentucky Bluegrass	L.	83.00	.06	—	—	77	*
	Fitchburg Hardware Co., Fitchburg	F.	**76.63**	**.45**	22.82	.10	84	7/1938
	ROSS BROS. CO., Worcester, Mass.							
1006	Kentucky Bluegrass	L.	85.00	.10	—	—	85	2/1938
	Ross Bros. Co., Worcester	F.	85.82	.10	13.98	.10	72	5/1938
	WM. G. SCARLET & CO., Baltimore, Md.							
1801	Kentucky Bluegrass, No. 2464	L.	84.00	2.50	—	—	80	4/1938
	F. A. Fales & Co., Norwood	F.	88.42	1.42	10.16	—	77	6/1938
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
1203	Kentucky Bluegrass, Fancy No. 3661	L.	86.80	.69	—	—	85	2/1938
	H. S. Chadbourne Co., Milford	F.	84.02	.39	15.49	.10	82	7/1938
1716	Kentucky Bluegrass, No. 3001	L.	86.80	.69	—	—	85	2/1938
	Farmers' Cooperative Exchange, Framingham	F.	85.24	.39	14.27	.10	85	7/1938
	BUCKWHEAT							
	JOSEPH BRECK & SONS, CORP., Boston, Mass.							
1202	Buckwheat	L.	*	*	—	—	*	*
	H. S. Chadbourne Co., Milford	F.	99.36	.01	.46	.17	78	4/1938
	STANFORD SEED CO., Buffalo, N. Y.							
1702	Japanese Buckwheat No. 6848	L.	99.68	.10	—	—	94	1/1938
	Raymond Bros. Co., Natick	F.	99.92	—	.08	—	95	7/1938
	ALSIKE CLOVER							
	BERKSHIRE COAL & GRAIN CO., North Adams, Mass.							
1314	Alsike Clover	L.	99.18	*	—	—	95	*/1937
	C. A. Smith Grain Store, Ludlow	F.	**96.06**	1.74	.51	1.69	93–7	6/1938
	ARTHUR R. CONE, Buffalo, N. Y.							
1302	Alsike Clover	L.	*	*	—	—	*	*
	Montgomery Hardware Co., Ayer	F.	98.77	.19	.09	.95	69–12	7/1938

1372	Alsike Clover	L.	99.68	*	—	—	80–12	1/1938
	Sunshine Feed Stores, Greenfield	F.	99.80	.05	.05	.10	89–10	7/1938
	EASTERN STATES FARMERS' EXCHANGE, Worcester, Mass.							
1042	Alsike Clover	L.	98.50	.35	.65	.50	70–20	12/1937
	Eastern States Farmers' Exchange, Worcester	F.	99.22	.39	.20	.19	82–14	7/1938
	THOMAS W. EMERSON CO., Boston, Mass.							
1187	Alsike Clover	L.	96.00	*	—	—	95	*/1938
	George A. Fair, Holliston	F.	98.65	.31	.23	.81	**85-13**	7/1938
	FITCHBURG HARDWARE CO., Fitchburg, Mass.							
1244	Alsike Clover	L.	95.80	.90	—	—	80–14	2/1937
	Fitchburg Hardware Co., Fitchburg	F.	95.56	.29	.10	4.05	76–16	5/1938
	JOHN D. LYON SEED CO., Belmont, Mass.							
1708	Alsike Clover	L.	96.00	1.50	.50	2.00	*	*
	Raymond Bros. Co., Natick	F.	98.57	.94	.10	.39	86–8	7/1938
	JEROME B. RICE SEED CO., Cambridge, N. Y.							
1087	Alsike Clover	L.	*	.20	—	—	78	11/1937
	Hamilton Hardware Co., Clinton	F.	99.44	.16	.22	.18	**65-16**	7/1938
	WM. G. SCARLET & CO., Baltimore, Md.							
1795	Alsike Clover	L.	*	*	—	—	*	*
	The Continental Nurseries, Franklin	F.	96.67	.89	.48	1.96	66–21	7/1938
	STANFORD SEED CO., Buffalo, N. Y.							
1142	Alsike Clover	L.	99.06	.49	—	—	83–10	3/1938
	Cutler Grain & Coal Co., Palmer	F.	98.70	.37	.08	.85	91–5	6/1938
	N. WERTHEIMER & SON, Buffalo, N. Y.							
1075	Alsike Clover (2) Lot No. 34103	L.	96.75	1.10	.25	1.90	82–14	2/1935
	Wallace Grain Co., Clinton	F.	**94.78**	1.39	.30	3.53	80-7	7/1938
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
1791	Alsike — Pan American — Lot No. 1939	L.	98.00	1.00	—	—	86–10	*
	Ryder Grain Co., East Bridgewater	F.	97.69	1.11	.53	.67	88–8	7/1938
	CRIMSON CLOVER							
	EASTERN STATES FARMERS' EXCHANGE, West Springfield, Mass.							
1723	Crimson Clover — Grown in Hungary (2)	L.	97.90	.15	1.80	.15	80–2	11/1931
	Farmers' Cooperative Exchange, Framingham	F.	98.82	.22	.96	—	**22–1**	7/1938

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test
	(†) RED CLOVER							
	BERKSHIRE COAL & GRAIN CO., North Adams, Mass.							
1315	Medium Red Clover	L.	99.40	*	—	—	95	4/1937
	C. A. Smith Grain Co., Ludlow	F.	98.78	.06	.06	.10	**83–6**	5/1938
1316	Red Clover (E)	L.	*	*	—	—	*	*
	C. A. Smith Grain Co., Ludlow	F.	98.96	.70	.30	.04	88–4	5/1938
	W. F. COBB CO., Franklin, Mass.							
1805	Red Clover (E)	L.	*	*	—	—	*	*
	W. F. Cobb Co., Franklin	F.	99.46	.11	.38	.05	83–5	7/1938
	COMSTOCK-FERRE & CO., Wethersfield, Conn.							
1669	Medium Red Clover (C)	L.	99.25	.10	—	—	90–4	1/1937
	Farmer's Cooperative Exchange, Framingham	F.	99.28	.22	.24	.26	94–2	7/1938
	ARTHUR R. CONE, Buffalo, N. Y.							
1301	Red Clover (C)	L.	*	*	—	—	*	*
	Montgomery Hardware Co., Ayer	F.	99.16	.16	.32	.36	77–2	7/1938
1357	Red Clover, Lot No. 15–131 (C)	L.	98.46	.16	—	—	80–10	12/1937
	Sunshine Feed Stores, Greenfield	F.	98.58	.16	.43	.83	93–6	7/1938
	EASTERN STATES FARMERS' EXCHANGE, Worcester, Mass.							
1043	Medium Red Clover	L.	99.20	.20	.15	.45	60–30	12/1937
	Eastern States Farmers' Exchange, Worcester	F.	99.62	.20	.05	.13	87–13	7/1938
	THOMAS W. EMERSON CO., Boston, Mass.							
1188	Red Clover (E)	L.	98.00	*	—	—	95	*/1938
	George A. Fair, Holliston	F.	98.91	.33	.63	.13	**78–8**	7/1938
1401	Imported Red Clover (E)	L.	99.00	*	—	—	94	*/1938
	Taft Bros., Uxbridge	F.	98.61	.26	.63	.50	89–3	7/1938
1984	Red Clover (E)	L.	98.00	*	—	—	95	*/1938
	John Hinckley & Son, Hyannis	F.	99.38	.23	.35	.04	**86–8**	7/1938
	JOHN D. LYON SEED CO., Belmont, Mass.							
1709	Imported Red Clover (E)	F.	99.55	.17	.05	.23	87–6	7/1938
	Raymond Bros. Co., Natick	L.	99.00	*	—	—	*	*

1710	Medium Red Clover (Canada) (C)	L.	98.00	.41	.70	.89	*	*
	Raymond Bros. Co., Natick	F.	98.53	.29	.50	.68	86–4	7/1938
	ROSS BROS. CO., Worcester, Mass.							
1007	Medium Red Clover	L.	99.50	.05	—	—	95	12/1937
	Ross Bros. Co., Worcester	F.	99.21	.04	.11	.64	89–4	7/1938
	WM. G. SCARLET & CO., Baltimore, Md.							
1794	Red Clover (E)	L.	*	*	—	—	*	*
	Continental Nurseries, Franklin	F.	99.55	.04	.08	.33	95–2	7/1938
	STANFORD SEED CO., Buffalo, N. Y.							
1015	Imported Red Clover, No. 4839 (E)	L.	99.64	.04	—	—	90	3/1938
	City Grain Co., Marlboro	F.	99.47	.03	.11	.39	90–5	7/1938
1083	Red Clover, No. 3924	L.	99.34	.26	—	—	83	2/1938
	Wallace Grain Co., Clinton	F.	99.03	.32	.03	.62	84–13	7/1938
1141	Red Clover (C)	L.	99.00	.31	—	—	85–8	3/1937
	Cutler Coal & Grain Co., Palmer	F.	98.88	.28	.38	.46	93–2	7/1938
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
1119	Imported Medium Red Clover, No. 5813 (E)	L.	99.25	.33	—	—	80–10	1/1938
	A. E. Wardell, New Bedford	F.	99.20	.27	.22	.31	79–2	7/1938
1272	Red Clover	L.	*	*	—	—	*	*
	Central Hardware Co., Fitchburg	F.	99.49	.32	.15	.04	78–8	7/1938
1878	Red Clover	L.	*	*	—	—	*	*
	Farm Service Co., Stoughton	F.	99.21	.38	.26	.15	83–8	7/1938
	SWEET CLOVER							
	ROSS BROS. CO., Worcester, Mass.							
1008	White Blossom Sweet Clover	L.	99.60	.02	—	—	95	2/1938
	Ross Bros. Co., Worcester	F.	99.03W .57Y	.07	.24	.09	61–20	7/1938
	Total Melilotus Spp.		99.60					
1671	White Blossom Sweet Clover	L.	99.50	.10	—	—	94	1/1937
	Farmers' Cooperative Exchange, Framingham	F.	98.81W 1.07Y	.02	.06	.04	72–2	6/1938
	Total Melilotus Spp.		99.88					

(†) E—1% of seed stained green, indicating Northern European origin.
C — 1% of seed stained violet, indicating Canadian origin.
All other samples of red clover in this table are of Domestic origin.

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test
	WHITE CLOVER							
	BERKSHIRE COAL & GRAIN CO., North Adams, Mass.							
1317	Fancy White Clover	L.	98.00	*	—	—	95	*/1937
	C. A. Smith Grain Store, Ludlow	F.	99.43	.24	.19	.14	89–8	6/1938
	JOSEPH BRECK & SONS, CORP., Boston, Mass.							
1584	White Clover	L.	98.00	*	—	—	90	1/1938
	Joseph Breck & Sons, Corp., Boston	F.	98.00	.54	.71	.75	77–7	7/1938
	FITCHBURG HARDWARE CO., Fitchburg, Mass.							
1250	White Clover	L.	98.40	.10	—	—	90	*
	Fitchburg Hardware Co., Fitchburg	F.	97.65	.43	1.87	.05	60–21	7/1938
	GARFIELD WILLIAMSON CO., New York, N. Y.							
1941	White Clover	L.	89.70	3.50	—	4.65	47–29	1/1938
	F. H. Turner & Co., Great Barrington	F.	90.24	4.64	1.40	3.72	32–22	7/1938
	ROSS BROS. CO., Worcester, Mass.							
1009	White Dutch Clover	L.	99.20	.30	—	—	90	11/1937
	Ross Bros. Co., Worcester	F.	98.84	.48	.39	.29	78–11	7/1938
	JEROME B. RICE SEED CO., Cambridge, N. Y.							
1089	White Dutch Clover	L.	*	.55	—	—	85	1/1937
	Hamilton Hardware Co., Clinton	F.	98.53	.83	.60	.04	79-20	7/1938
	WM. G. SCARLET & CO., Baltimore, Md.							
1793	White Clover	L.	*	*	—	—	*	*
	The Continental Nurseries, Franklin	F.	98.48	.86	.28	.38	75-6	7/1938
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
1206	White Clover, No. 6066	L.	98.32	.32	—	—	80-10	*
	H. S. Chadbourne Co., Milford	F.	98.53	.50	.46	.51	81-6	7/1938
1273	White Clover	L.	*	*	—	—	*	*
	Central Hardware Co., Orange	F.	97.01	.59	.59	1.81	81.3	7/1938
	CORN							
	COMSTOCK-FERRE & CO., Wethersfield, Conn.							
1714	West Branch Sweepstakes, No. 733	L.	99.00	—	—	—	90	1/1938
	Farmers' Cooperative Exchange, Framingham	F.	99.90	—	.10	—	98	5/1938
1715	Eureka	L.	99.00	—	—	—	90	1/1938
	Farmers' Cooperative Exchange, Framingham	F.	99.80	—	.20	—	68	6/1938

	ARTHUR R. CONE, Buffalo, N. Y.							
1358	West Branch Sweepstakes No. 80-368	L.	99.00	—	—	—	90	3/1938
	Sunshine Feed Stores, Greenfield	F.	99.95	—	.05	—	90	5/1938
1359	Yellow Sweepstakes No. 80-282	L.	98.00	—	—	—	88	1/1938
	Sunshine Feed Stores, Greenfield	F.	99.60	—	.40	—	85	5/1938
1360	Lancaster Surecrop Lot No. 80-283	L.	98.00	—	—	—	90	3/1937
	Sunshine Feed Stores, Greenfield	F.	99.90	—	.10	—	**74**	5/1938
1362	Flint Corn (Statale) No. 83-73	L.	98.00	—	—	—	93	3/1937
	Sunshine Feed Stores, Greenfield	F.	99.90	—	.10	—	87	5/1938
1363	Eureka No. 80-275	L.	98.00	—	—	—	90	3/1937
	Sunshine Feed Stores, Greenfield	F.	99.95	—	.05	—	92	7/1938
	CRAVER DICKINSON SEED CO., Buffalo, N. Y.							
1350	Cerklins Early Wonder, No. 72-357	L.	99.00	—	—	—	90	3/1937
	Community Feed Stores, South Deerfield	F.	99.75	—	.25	—	**82**	5/1938
	THOMAS W. EMERSON CO., Boston, Mass.							
1398	Leaming	L.	98.00	—	—	—	85	*/1938
	Taft Bros., Uxbridge	F.	99.60	—	.40	—	**65**	5/1938
1400	Mammoth Prize	L.	98.00	—	—	—	90	*/1938
	Taft Bros., Uxbridge	F.	99.90	—	.10	—	89	7/1938
1653	Longfellow	L.	*	—	—	—	*	*
	Lawson's Paint & Seed Co., Campello	F.	99.40	—	.60	—	90	5/1938
	REIST SEED CO., Lancaster, Pa.							
1227	Sure Crop	L.	99.00	—	—	—	90	3/1938
	Farm Service Co., Leominster	F.	99.40	—	.60	—	95	5/1938
1652	Mammoth Yellow Sweepstakes	L.	99.00	—	—	—	90	3/1938
	Farm Service Co., North Abington	F.	99.90	—	.10	—	92	5/1938
	JEROME B. RICE SEED CO., Cambridge, N. Y.							
1201	Evergreen Fodder	L.	99.00	—	—	—	*	11/1937
	H. S. Chadbourne Co., Milford	F.	99.90	—	.10	—	**63**	5/1938
	WM. G. SCARLET & CO., Baltimore, Md.							
1115	Yellow Sweepstakes "A"	L.	98.00	.20	—	—	90	2/1937
	C. P. Washburn Co., Middleboro	F.	99.40	—	.60	—	**81**	5/1938

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
1258	Early Eureka	L.	98.00	—	—	—	90	3/1938
	Farm Service Co., Fitchburg	F.	99.95	—	.05	—	85	7/1938
1292	Improved Leaming	L.	98.00	—	—	—	90	2/1938
	Farm Service Co., Ayer	F.	99.90	—	.10	—	90	7/1938
1351	Yellow Dent	L.	99.00	—	—	—	90	3/1937
	Community Feed Store, South Deerfield	F.	99.40	—	.60	—	79	5/1938
1713	Excelsior Ensilage	L.	98.00	—	—	—	90	3/1938
	Farmers' Cooperative Exchange, Framingham	F.	99.95	—	.05	—	92	5/1938
	FESCUES							
	COMSTOCK-FERRE & CO., Wethersfield, Conn.							
1721	Meadow Fescue (7)	L.	98.00	.20	—	—	90	3/1937
	Farmers' Cooperative Exchange, Framingham	F.	99.14	.39	.40	.07	85	6/1938
	THOMAS W. EMERSON CO., Boston, Mass.							
1910	Chewing's Fescue No. 114	L.	98.00	*	—	—	88	*/1938
	Frank Howard, Inc., Pittsfield	F.	97.56	.05	1.92	.47	44	6/1938
	MIDDLESEX COUNTY FARM BUREAU, Waltham, Mass.							
1890	Meadow Fescue	L.	94.27	4.60	—	—	85	2/1938
	Middlesex County Farm Bureau, Waltham	F.	95.01	4.34	.63	.02	90	6/1938
	PERRY SEED CO., Boston, Mass.							
1687	Chewing's Fescue	L.	99.20	.05	.60	.15	80	1/1938
	Perry Seed Co., Boston	F.	97.87	.11	1.73	.29	39	7/1938
	F. H. WOODRUFF & SONS, Milford, Conn.							
1445	Chewing's Fescue, New Zealand No. 71-37	L.	99.46	.05	.39	.10	90	4/1937
	Fraser's, Wellesley	F.	98.02	.35	1.48	.15	11	6/1938
	MANGELS							
	COMSTOCK-FERRE & CO., Wethersfield, Conn.							
1092	Red Mangel Beet (2)	L.	*	*	—	—	*	*
	W. M. Lee Co., Clinton	F.	86.31	.03	13.66	—	50	7/1938
	THOMAS W. EMERSON CO., Boston, Mass.							
1077	Long Red Mangel Beet	L.	98.00	—	—	—	90	*/1937
	Wallace Grain Co., Clinton	F.	98.98	—	1.02	—	94	7/1938

	CHARLES C. HART SEED CO., Wethersfield, Conn.							
1797	Giant Long Red Mangel Beet	L.	*	*	—	—	*	*
	H. A. Spear & Son, Walpole	F.	99.49	.05	.46	—	91	6/1938
	JEROME B. RICE SEED CO., Cambridge, N. Y.							
1088	Norbiton Giant	L.	*	*	—	—	*	*
	Hamilton Hardware Co., Clinton	F.	98.75	.02	1.22	.01	91	7/1938
	JOHN B. VARICK SEED CO., Manchester, N. H.							
1293	Mammoth Prize Long Red Wurzel Beet	L.	*	—	—	—	*	*
	I. G. Dwinell, Ayer	F.	98.88	—	.52	.60	69	6/1938
	F. H. WOODRUFF & SONS, Milford, Conn.							
1109	Mammoth Long Red Mangel Beet	L.	*	*	—	—	*	*
	Saunder's Hardware Co., Middleboro	F.	99.29	.09	.62	—	84	7/1938
1178	Cow Beets	L.	*	—	—	—	*	*
	Leona Trespacz, West Warren	F.	99.60	—	.40	—	90	6/1938
	GERMAN MILLET							
	ALBERT DICKINSON CO., Chicago, Ill.							
1291	German Millet, No. 8224 (4)	L.	98.36	1.12	—	—	88	11/1936
	Manchurian White Wonder Millet	F.	97.97	1.87	.14	.02	83	7/1938
	Farm Service Co., Ayer							
	GOLDEN MILLET							
	FITCHBURG HARDWARE CO., Fitchburg, Mass.							
1249	Golden Millet, No. 4677	L.	98.08	*	—	—	85	3/1938
	Fitchburg Hardware Co., Fitchburg	F.	96.86	.39	1.18	1.57	44	7/1938
	WM. G. SCARLET & CO., Baltimore, Md.							
1113	Golden Millet, No. 7278	L.	99.00	.25	—	—	90	2/1937
	C. P. Washburn Co., Middleboro	F.	99.50	.31	.19	—	90	7/1938
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
1718	Golden Millet, No. 9064	L.	98.76	.81	—	—	90	2/1938
	Farmers' Cooperative Exchange, Framingham	F.	99.27	.69	.04	—	95	7/1938
	HUNGARIAN MILLET							
	ARTHUR R. CONE, Buffalo, N. Y.							
1365	Hungarian Millet, No. 38-88	L.	98.94	.80	—	—	82	1/1938
	Sunshine Feed Stores, Greenfield	F.	98.55	.94	.48	.03	78	7/1938
	CRAVER DICKINSON SEED CO., Buffalo, N. Y.							
1353	Hungarian Millet, No. 83-34	L.	99.28	.57	—	—	82	2/1937
	Community Feed Store, South Deerfield	F.	99.35	.45	.20	—	82	7/1938

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test
	HUNGARIAN MILLET — Concluded							
	ALBERT DICKINSON CO., Chicago, Ill.							
1290	Hungarian Millet, No. 8333 (2)	L.	98.60	1.14	—	—	90	11/1936
	Farm Service Co., Ayer	F.	98.78	.64	.52	.05	64	7/1938
1877	Hungarian Millet, No. 8333	L.	98.60	1.14	—	—	90	11/1936
	Farm Service Co., Stoughton	F.	98.49	.96	.32	.23	67	7/1938
	STANFORD SEED CO., Buffalo, N. Y.							
1018	Hungarian Millet, No. 6831	L.	98.45	1.25	—	—	85	2/1938
	City Grain Co., Marlboro	F.	98.25	1.20	.55	—	85	7/1938
1145	Hungarian Millet	L.	98.45	1.25	—	—	85	2/1938
	Cutler Coal & Grain Co., Palmer	F.	98.36	1.19	.32	.13	90	7/1938
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
1260	Hungarian Millet, No. 9056	L.	98.50	.43	—	—	90	1/1938
	Farm Service Stores, Fitchburg	F.	98.68	.41	.91	—	88	7/1938
1289	Hungarian Millet, No. 9056 (1)	L.	98.50	.43	—	—	90	1/1938
	Farm Service Stores, Ayer	F.	98.40	.63	.66	.31	86	7/1938
	Six wild mustard seed per ounce found							
	JAPANESE MILLET							
	ALLIED SEED CO., Fort Wayne, Indiana							
1371	Japanese Millet, No. 81-6	L.	97.51	2.40	—	—	85	4/1937
	Sunshine Feed Store, Greenfield	F.	97.68	1.90	.42	—	82	7/1938
	ARTHUR R. CONE, Buffalo, N. Y.							
1370	Japanese Millet, No. 38-95	L.	98.42	1.35	—	—	80	12/1937
	Sunshine Feed Store, Greenfield	F.	98.51	1.42	.07	—	73	7/1938
	CRAVER DICKINSON SEED CO., Buffalo, N. Y.							
1352	Japanese Millet, No. 81-14	L.	98.48	1.38	—	—	88	3/1937
	Community Feed Store, South Deerfield	F.	97.86	2.01	.13	—	83	7/1938
	THOMAS W. EMERSON CO., Boston, Mass.							
1803	Japanese Millet	L.	97.76	*	—	—	86	4/1937
	W. K. Gilmore, Norfolk	F.	98.92	.04	1.04	—	88	7/1938

	FITCHBURG HARDWARE CO., Fitchburg, Mass.							
1245	Japanese Millet	L.	98.79	1.20	—	—	80	3/1932
	Fitchburg Hardware Co., Fitchburg	F.	**97.03**	**2.73**	.24	—	90	7/1938
	PAGE SEED CO., Greene, N. Y.							
1198	Japanese Millet J-5 A-37	L.	97.00	1.08	—	—	87	11/1936
	H. S. Chadbourne Co., Milford	F.	97.32	**2.56**	.12	—	**77**	1/1938
	STANFORD SEED CO., Buffalo, N. Y.							
1017	Japanese Millet, No. 6956	L.	99.00	.93	—	—	83	3/1938
	City Grain Co., Marlboro	F.	98.97	.94	.09	—	**72**	7/1938
1146	Japanese Millet	L.	99.00	.93	—	—	83	3/1938
	Cutler Grain & Coal Co., Palmer	F.	98.94	.97	.09	—	76	7/1938
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
1798	Japanese Millet	L.	97.77	1.99	—	—	85	1/1938
	F. A. Fales & Co., Norwood	F.	97.75	2.03	.22	—	**65**	7/1938
1880	Japanese Millet	L.	*	*	—	—	*	*
	Farm Service Co., Stoughton	F.	97.61	1.94	.42	.03	90	7/1938

OATS

	ST. ALBANS SEED CO., St. Albans, Vt.							
1176	Hygrade Fancy Seed Oats (I)	L.	97.00	*	—	—	92	3/1938
	Noxious Weeds .2 of 1%							
	Warren Grain Co., Warren	F.	96.82	.03	.48	2.67	92	5/1938
	Two wild mustard seed per ounce found							
1177	Oats (I)	L.	*	*	—	—	*	*
	Warren Grain Co., Warren	F.	96.50	.08	.36	3.06	96	5/1938
	Two wild mustard seed per ounce found							
1975	Wirthmore Fancy Seed Oats	L.	98.00	—	—	—	95	*
	Buzzard's Bay Grain Co., Buzzard's Bay	F.	98.12	—	.76	1.12	93	7/1938
	E. W. BAILEY & CO., Montpelier, Vt.							
1276	Seed Oats	L.	99.50	—	—	—	98	3/1938
	United Cooperative Farmers' Exchange, Fitchburg	F.	**98.06**	—	.44	1.50	93	5/1938
	BERKSHIRE COAL & GRAIN CO., North Adams, Mass.							
1312	Seed Oats (Swedish Type) (I)	L.	98.00	*	—	—	95	*
	C. A. Smith Grain Store, Ludlow	F.	98.93	.02	.73	.32	89	5/1938
	Two wild mustard seed per ounce found							

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed. Dealer and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test
	OATS — Continued							
	JOSEPH BRECK & SONS CORP., Boston, Mass.							
1483	Seed Oats (Swedish Type)	L.	99.00	*	—	—	98	1/1938
	Joseph Breck & Sons Corp., Boston	F.	99.59	.18	.05	.18	100	5/1938
	W. F. COBB CO., Franklin, Mass.							
1808	Cluster Oats (1)	L.	99.80	.07	.10	—	90	2/1938
	W. F. Cobb Co., Franklin	F.	**98.53**	.01	.02	1.44	95	7/1938
	One wild mustard seed per ounce found							
	COBURN SEED & SUPPLY CO., Chelmford, Mass.							
1789	Excelsior Oats	L.						*
	Coburn Seed & Supply Co., Chelmsford	F.	99.52	.05	.14	.29	95	7/1938
	COMMUNITY FEED STORE, Westminster, Vt.							
1356	Community Brand Seed Oats	L.	98.00	.01	—	—	90	3/1938
	Community Feed Store, South Deerfield	F.	97.74	—	.90	1.36	95	7/1938
	ARTHUR R. CONE, Buffalo, N. Y.							
1357	Selected Seed Oats 36-70	L.	95.00	—	—	—	85	3/1938
	Sunshine Feed Store, Greenfield	F.	98.42	—	.44	.14	94	5/1938
	CHARLES M. COX, Boston, Mass.							
1163	Seed Oats	L.	98.00	—	—	—	95	*
	Spencer Grain Co., Spencer	F.	99.44	—	.20	.36	96	5/1938
1190	Oats No. 42-44 (1)	L.	*	*	—	—	*	*
	George A. Fair, Holliston	F.	97.37	.07	.74	1.82	94	5/1938
	Seven wild mustard seed per ounce found							
	EASTERN STATES FARMERS' EXCHANGE, West Springfield, Mass.							
2032	Selected Oats, Grown in Michigan	L.	97.00	.15	.85	2.00	90	12/1937
	Essex County Cooperative Association, Topsfield	F.	**95.31**	.19	.22	4.28	97	7/1938
	EASTERN STATES FARMERS' EXCHANGE, Worcester, Mass.							
1035	Selected Seed Oats	L.	97.00	.15	.85	2.00	90	12/1937
	Eastern States Farmers' Exchange, Worcester	F.	**99.18**	.01	.12	.69	92	5/1938
	ELMORE MILLING CO., Oneonta, N. Y.							
1275	Seed Oats No. 40-42	L.	**98.00**	*	—	—	95	*
	United Cooperative Farmers' Exchange, Fitchburg	F.	**97.04**	.36	.86	1.74	91	5/1938

	FARM SERVICE STORES, Fitchburg, Mass.							
1220	Seed Oats No. 40-42 (1)	L.	*	*	—	—	*	*
	Farm Service Stores, West Berlin	F.	97.54	.06	.46	1.94	95	5/1938
	Eight wild mustard seed per ounce found							
	MIDDLESEX COUNTY FARM BUREAU, Waltham							
1893	Oats (1)	L.	*	*	—	—	*	*
	Middlesex County Farm Bureau, Waltham	F.	91.38	1.32	2.14	5.16	91	7/1938
	Two wild mustard seed and three quack grass seed per ounce found							
	GEORGE Q. MOON CO., Binghamton, N. Y.							
1318	Seed Oats No. 40-42 (1)	L.	98.00	*	—	—	95	2/1938
	H. L. Gates, Indian Orchard	F.	97.89	.01	.44	1.66	97	7/1938
	One wild mustard seed per ounce found							
	NOYES & COLBY, Boston, Mass.							
1621	Oats	L.	*	—	—	—	*	*
	Farmers' Cooperative Exchange, Framingham	F.	98.86	—	.88	.26	96	5/1938
	O & M SEED CO., Green Springs, Ohio							
1809	O & M Seed Oats	L.	98.00	*	—	—	94	1/1938
	W. F. Cobb Co., Franklin	F.	99.40	.15	.11	.34	99	7/1938
	PARK & POLLARD, Buffalo, N. Y.							
1703	Oats	L.	96.00	—	—	—	95	2/1938
	Raymond Bros. Co., Natick	F.	98.58	—	.26	1.16	93	5/1938
	PERRY SEED CO., Boston, Mass.							
1683	Seed Oats	L.	*	*	—	—	*	*
	Perry Seed Co., Boston	F.	98.23	.01	.91	.85	89	5/1938
	RALSTON PURINA CO., Buffalo, N. Y.							
1373	Oats (Swedish Select)	L.	98.33	.07	—	—	97	3/1938
	Checkerboard Feed Store, Greenfield	F.	98.36	.13	.06	1.45	98	5/1938
	RICE GRAIN CO., Toledo, Ohio							
1082	Oats	L.	98.00	—	—	—	95	*
	Wallace Grain Co., Clinton	F.	98.93	—	.29	.78	97	5/1938
1105	Oats	L.	*	—	—	—	*	*
	Farm Service Stores, Middleboro	F.	96.34	—	1.36	2.30	95	5/1938
	ROSS BROS. CO., Worcester, Mass.							
1003	Oats (Swedish Select)	L.	99.17	.12	—	—	96	3/1938
	Ross Bros. Co., Worcester	F.	98.86	.08	.05	1.01	100	5/1938

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test
	OATS — Concluded							
	WARE GRAIN & COAL CO., Ware, Mass.							
1140	Seed Oats	L.	98.00	*	—	—	95	*
	Cutler Grain & Coal Co., Palmer	F.	97.74	.04	.88	1.34	90	5/1938
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
1117	Excelsior Seed Oats No. 8174	L.	98.00	*	—	—	90	3/1938
	A. E. Wardell, New Bedford	F.	98.73	.01	.18	1.08	99	5/1938
	UNKNOWN							
1879	Oats (1)	L.	*	*	—	—	*	*
	Farm Service Co., Stoughton	F.	94.20	.18	.90	4.72	94	7/1938
	Four wild mustard seed and two quack grass seed per ounce found							
	ORCHARD GRASS							
	FITCHBURG HARDWARE CO., Fitchburg, Mass.							
1247	Orchard Grass	L.	85.20	.10	—	—	75	12/1937
	Fitchburg Hardware Co., Fitchburg	F.	**81.03**	.22	18.59	.16	73	5/1938
	ROSS BROS. CO., Worcester, Mass.							
1004	Orchard Grass	L.	87.50	.15	—	—	85	2/1938
	Ross Bros. Co., Worcester	F.	**83.08**	.09	16.78	.05	91	5/1938
	PEAS							
	APOTHECARIES HALL CO., Waterbury, Conn.							
1707	Canada Field Peas	L.	*	—	—	—	*	*
	Raymond Bros. Co., Natick	F.	99.20	—	.70	.10	98	5/1938
	THOMAS W. EMERSON CO., Boston, Mass.							
1189	Canada Field Peas	L.	99.00	—	—	—	95	*/1937
	George A. Fair, Holliston	F.	99.86	—	.14	—	91	5/1938
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
1876	Canada Field Peas No. 9539	L.	99.00	—	—	—	93	2/1938
	Farm Service Co., Stoughton	F.	99.86	—	.05	.09	**67**	7/1938
	UNKNOWN							
1993	Canada Field Peas	L.	*	—	—	—	*	*
	Farm Service Store, Newburyport	F.	99.93	—	.07	—	89	7/1938

	RAPE							
	COBURN SEED & SUPPLY CO., Chelmsford, Mass.							
1790	Dwarf Essex	L.	*	—	—	—	*	*
	Coburn Seed & Supply Co., Chelmsford	F.	99.90	—	.08	.02	96	7/1938
	THOMAS W. EMERSON CO., Boston, Mass.							
1994	Dwarf Essex	L.	*	*	—	—	*	*
	Farm Service Store, Newburyport	F.	99.81	.03	.16	—	89	7/1938
	MIDDLESEX COUNTY FARM BUREAU, Waltham, Mass.							
1891	Dwarf Essex	L.	99.00	.20	.80	—	90	1/1938
	Middlesex County Farm Bureau, Waltham	F.	99.73	.06	.20	.01	94	7/1938
	JEROME B. RICE SEED CO., Cambridge, N. Y.							
1086	Dwarf Essex	L.	99.50	*	—	—	92	2/1938
	Hamilton Hardware Co., Clinton	F.	99.82	.09	.09	—	92	7/1938
	ROSS BROS. CO., Worcester, Mass.							
1012	Dwarf Essex	L.	99.11	.39	—	—	90	1/1938
	Ross Bros. Co., Worcester	F.	98.85	.14	1.01	—	93	7/1938
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
1717	Dwarf Essex	L.	99.90	.02	—	—	90	1/1938
	Farmers' Cooperative Exchange, Framingham	F.	99.90	—	.10	—	93	7/1938
	REDTOP							
	COMSTOCK-FERRE & CO., Wethersfield, Conn.							
1719	Redtop, No. 763	L.	98.10	.30	—	—	93	1/1938
	Farmers' Cooperative Exchange, Framingham	F.	97.71	.36	1.81	.12	96	7/1938
	ARTHUR R. CONE, Buffalo, N. Y.							
1303	Redtop	L.	91.90	.30	—	—	92	3/1937
	Montgomery Hardware Co., Ayer	F.	91.58	.33	7.43	.66	86	7/1938
1369	Redtop	L.	95.20	.80	—	—	*	3/1937
	Sunshine Feed Store, Greenfield	F.	91.30	.48	7.83	.39	90	7/1938
	ALBERT DICKINSON CO., Chicago, Ill.							
1108	Redtop, No. 011225	L.	92.50	.50	—	—	90	11/1936
	Farm Service Store, Middleboro	F.	94.76	.24	4.63	.37	91	7/1938
1354	Redtop, No. 41411	L.	95.10	.75	3.75	.10	90	9/1937
	Community Feed Store, South Deerfield	F.	96.31	.81	2.73	.12	93	7/1938
	EASTERN GRAIN CO., Bridgewater, Mass.							
1991	Redtop	L.	*	*	—	—	*	*
	Lawrence Bros., Falmouth	F.	89.49	1.82	8.41	.28	83	7/1938

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor Brand or Trade Name of Seed, Dealer and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test
	REDTOP — Concluded							
	THOMAS W. EMERSON CO., Boston, Mass.							
1185	Redtop	L.	90.00	*	—	—	90	*/1938
	George A. Fair, Holliston	F.	91.59	1.78	6.43	.20	93	7/1938
1608	Redtop	L.	97.00	.58	—	—	93	1/1938
	Thomas W. Emerson Co., Boston	F.	97.31	.56	2.13	—	90	7/1938
1983	Redtop	L.	90.00	*	—	—	90	*/1938
	John Hinckley & Son, Hyannis	F.	93.22	1.52	5.12	.14	92	7/1938
	FITCHBURG HARDWARE CO., Fitchburg, Mass.							
1248	Redtop Lot No. 30925 (2)	L.	91.00	.60	—	—	90	2/1928
	Fitchburg Hardware Co., Fitchburg	F.	92.48	.74	6.54	.24	76	7/1938
	JOHN D. LYON SEED CO., Belmont, Mass.							
1705	Redtop	L.	93.38	1.89	4.73	—	*	*
	Raymond Bros. Co., Natick	F.	92.95	2.12	4.79	.14	90	7/1938
	MIDDLESEX COUNTY FARM BUREAU, Waltham, Mass.							
1892	Redtop	L.	93.00	1.10	—	—	97	3/1938
	Middlesex County Farm Bureau, Waltham	F.	90.01	2.91	6.94	.14	91	7/1938
	WM. G. SCARLET & CO., Baltimore, Md.							
1800	Redtop No. 2364	L.	92.00	.90	—	—	90	3/1938
	F. A. Fales & Co., Norwood	F.	92.56	.62	5.09	1.73	85	7/1938
	STANFORD SEED CO., Buffalo, N. Y.							
1014	Redtop	L.	92.95	.58	—	—	91	3/1938
	City Grain Co., Marlboro	F.	92.07	1.29	6.48	.16	89	7/1938
1144	Redtop	L.	92.95	.58	—	—	91	3/1938
	Cutler Grain & Coal Co., Palmer	F.	92.66	1.41	5.56	.37	91	7/1938
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
1229	Pan American Redtop	L.	93.30	1.30	—	—	90	1/1938
	Farm Service Stores, Leominster	F.	90.83	1.39	7.64	.14	89	7/1938
1792	Imperator, Lot No. 4280	L.	90.00	2.11	—	—	90	2/1938
	Ruder Grain Co., East Bridgewater	F.	92.15	2.10	5.47	.28	90	7/1938
1802	Pan American Redtop, Lot No. 4243	L.	92.25	.56	—	—	90	1/1937
	W. K. Gilmore, Norfolk	F.	92.13	.33	7.54	—	91	7/1938

RYE

	JOSEPH BRECK & SONS CORP., Boston, Mass.							
1106	Spring Rye	L.	98.00	*	—	—	91	1/1938
	Farm Service Stores, Inc., Middleboro	F.	98.36	.11	1.50	.03	92	5/1938
1484	Spring Rye	L.	98.50	.08	—	—	91	1/1938
	Joseph Breck & Sons Corp., Boston	F.	98.32	.04	1.49	.15	94	5/1938
	EASTERN GRAIN CO., Bridgewater, Mass.							
1976	Rye (6)	L.	*	*	—	—	*	*
	Buzzard's Bay Grain Co., Buzzard's Bay	F.	96.48	.09	1.35	2.08	79	6/1938
	FITCHBURG HARDWARE CO., Fitchburg, Mass.							
1253	Rosen Rye (1)	L.	97.00	.03	—	—	90	*
	Fitchburg Hardware Co., Fitchburg	F.	95.90	.28	1.52	2.30	75	7/1938
	Two wild mustard seed per ounce found							
	PERRY SEED CO., Boston, Mass.							
1685	Rosen Rye (1)	L.	*	*	—	—	*	*
	Perry Seed Co., Boston	F.	99.17	.13	.09	.01	94	5/1938
	Twelve quack grass seed per ounce found							
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
1992	Spring Rye, Lot No. 8169	L.	98.04	.09	—	—	85	1/1938
	Farm Service Store, Newburyport	F.	98.21	.11	1.38	.30	79	6/1938
	UNKNOWN							
1881	Winter Rye (1)	L.	*	*	—	—	*	*
	Farm Service Store, Stoughton	F.	97.80	.27	1.77	.16	88	6/1938
	One wild mustard seed and 10 quack grass seed per ounce found							

RYEGRASS

	DURYEA SEED CO., New York City, N. Y.							
1446	Domestic Ryegross	L.	99.00	.25	—	—	90	11/1937
	Fraser's, Wellesley	F.	99.06	.81	.13	—	93	7/1938
	EASTERN STATES FARMERS' EXCHANGE, Worcester, Mass.							
1041	Domestic Ryegrass	L.	98.50	.35	.30	.85	87	12/1937
	Eastern States Farmers' Exchange, Worcester	F.	99.23	.42	.30	.05	94	7/1938
	ARTHUR R. CONE, Buffalo, N. Y.							
1300	Domestic Ryegrass	L.	99.50	.38	—	—	90	2/1937
	Montgomery Hardware Co., Ayer	F.	99.87	.07	.06	—	94	5/1938

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test
	RYEGRASS — Concluded							
	PERRY SEED CO., Boston, Mass.							
1686	Domestic Ryegrass	L.	99.43	.11	—	—	90	*
	Perry Seed Co., Boston	F.	99.35	.16	.46	.03	93	7/1938
	WM. G. SCARLET & CO., Baltimore, Md.							
1908	Domestic Ryegrass, Lot No. 908	L.	99.00	.51	—	—	90	2/1938
	Frank Howard, Inc., Pittsfield	F.	99.71	.10	.13	.06	90	7/1938
	SOY BEANS							
	W. F. COBB CO., Franklin, Mass.							
1804	Manchu Soy Beans	L.	*	—	—	—	*	*
	W. F. Cobb Co., Franklin	F.	99.82	—	.18	—	63	7/1938
1806	Black Wilson Soy Beans	L.	*	—	—	—	*	*
	W. F. Cobb Co., Franklin	F.	99.88	—	.05	.07	81	7/1938
	MIDDLESEX COUNTY FARM BUREAU, Waltham, Mass.							
1887	Soy Beans (6)	L.	98.00	.50	1.50	—	75–5	1/1938
	Middlesex County Farm Bureau, Waltham, Mass.	F.	98.99	—	.50	.51	67	7/1938
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
1259	Black Wilson Soy Beans	L.	99.00	—	—	—	90	2/1938
	Farm Service Stores, Fitchburg	F.	99.84	.02	.14	—	90	7/1938
1720	Manchu Lot No. A-9524	L.	98.00	—	—	—	89	2/1937
	Farmers' Cooperative Exchange, Framingham	F.	99.10	—	.90	—	86	5/1938
2016	Black Wilson Lot No. 9451	L.	99.00	—	—	—	90	*
	Farm Service Co., Lowell	F.	99.54	—	.46	—	93	7/1938
	TIMOTHY							
	ARTHUR R. CONE, Buffalo, N. Y.							
1304	Timothy	L.	*	*	—	—	*	*
	Montgomery Hardware Co., Ayer	F.	99.55	.05	.25	.15	82	6/1938
1368	Timothy, Lot No. 10-153	L.	99.60	.12	—	—	93	12/1937
	Sunshine Feed Store, Greenfield	F.	99.50	.15	.25	.10	96	6/1938
	ALBERT DICKINSON CO., Chicago, Ill.							
1355	Timothy, Lot No. 6668	L.	99.65	.05	.25	.05	94	10/1937
	Community Feed Store, South Deerfield	F.	99.75	—	.20	.05	94	6/1938

1905	Timothy, Lot No. 66219-20	L.	99.70	.05	.15	.10	94	3/1938
	Frank Howard, Inc., Pittsfield	F.	99.80	.05	.15	—	93	7/1938
	DOUGHTEN SEED CO., Jersey City, N. J.							
1691	Freedom, No. T-348	L.	99.75	.05	.10	.10	91	3/1938
	Town Paint & Supply Co., Natick	F.	99.77	.03	.16	.04	93	7/1938
	DURYEA SEED CO., New York City, N. Y.							
1447	Timothy	L.	99.65	.10	—	—	90	1/1938
	Fraser's, Wellesley	F.	99.45	.20	.25	.10	88	6/1938
	EASTERN STATES FARMERS' EXCHANGE, Worcester, Mass.							
1038	Timothy—Grown in Midwest	L.	99.50	.10	.30	.10	90	12/1937
	Eastern States Farmers' Exchange, Worcester	F.	99.49	.04	.39	.08	85	7/1938
	THOMAS W. EMERSON CO., Boston, Mass.							
1053	Timothy—Gem, 1937	L.	*	*	—	—	*	*
	Lincoln Square Paint & Hardware Co., Worcester	F.	99.75	.03	.16	.06	84	7/1938
1399	Timothy	L.	99.50	*	—	—	92	*/1938
	Taft Bros., Uxbridge	F.	99.59	.05	.27	.09	91	6/1938
1186	Timothy	L.	99.60	*	—	—	92	*/1938
	George A. Fair, Holliston	F.	99.76	.05	.14	.05	83	6/1938
1799	Timothy	L.	99.50	—	—	—	92	*/1938
	F. A. Fales & Co., Norwood	F.	99.60	—	.21	.13	98	7/1938
	WM. G. SCARLET & CO., Baltimore, Md.							
1116	Timothy, Lot No. 2230	L.	99.60	.20	—	—	90	1/1937
	C. P. Washburn & Co., Middleboro	F.	99.60	.05	.13	.22	92	7/1938
1990	Timothy, Lot No. 2230	L.	99.60	.20	—	—	90	1/1938
	C. P. Washburn & Co., Falmouth	F.	99.71	.05	.19	.05	86	7/1938
	STANFORD SEED CO., Buffalo, N. Y.							
1016	Timothy, Lot No. 6648	L.	99.81	.03	—	—	93	3/1938
	City Grain Co., Marlboro	F.	99.72	.05	.18	.05	97	7/1938
1143	Timothy	L.	99.66	.05	—	—	94	3/1938
	Cutler Coal & Grain Co., Palmer	F.	99.71	—	.24	.05	96	7/1938
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
1107	Pan American, Lot No. 625	L.	99.70	.05	—	—	95	1/1938
	Farm Service Stores, Inc., Middleboro	F.	99.16	.05	.56	.23	90	7/1938

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test
	TIMOTHY — Concluded							
	WHITNEY ECKSTEIN SEED CO. — Concluded							
1199	Pan American	L.	*	*	—	—	*	*
	H. S. Chadbourne Co., Milford	F.	99.66	.10	.19	.05	92	7/1938
1230	Pan American, Lot No. 626	L.	99.70	.05	—	—	95	1/1938
	Farm Service Co., Leominster	F.	99.67	.10	.14	.09	89	7/1938
	VETCH							
	COMSTOCK-FERRE & CO., Wethersfield, Conn.							
1722	Fancy Winter, Lot No. 463 (2)	L.	97.25	.05	—	—	95	3/1935
	Farmers' Cooperative Exchange, Framingham	F.	96.99	.26	.04	2.80	90–4	7/1938
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
1118	Spring Vetch, Lot No. 9440	L.	98.24	.20	—	—	95	2/1938
	A. E. Wardell, New Bedford	F.	98.70	.50	.17	.63	98	7/1938
1262	Winter Vetch	L.	99.00	.10	—	—	90	2/1938
	Farm Service Stores, Fitchburg	F.	99.65	.18	.17	—	77–18	7/1938
	WHEAT							
	JOSEPH BRECK & SONS CORP., Boston, Mass.							
1485	Marquis Type Spring Wheat	L.	99.74	—	—	—	98	1/1938
	Joseph Breck & Sons Corp., Boston	F.	99.88	—	.06	.06	96	5/1938
	ROSS BROS. CO., Worcester, Mass.							
1985	Spring Wheat	L.	*	*	—	—	*	*
	Hyannis Hardware Co., Hyannis	F.	99.85	.01	.12	.02	83	6/1938
	WM. G. SCARLET & CO., Baltimore, Md.							
1796	Wheat (6)	L.				—	*	*
	The Continental Nurseries, Franklin	F.	99.72	—	.13	.15	86	6/1938
	MIXTURES							
	THOMAS W. EMERSON CO., Boston, Mass.							
1052	Redtop—Gr. 1937*	L.	*	*	—	—	*	*
	Lincoln Square Paint & Hardware Co., Worcester	F.	74.36R				85R	7/1938
	Redtop and Timothy Mixture		16.37T	.54	8.73	—	84T	

	J. OLIVER JOHNSON CO., Chicago, Ill.							
1409	White Clover & Timothy	L.	80.00W 18.00T	1.00	1.00	—	80W 80T	1/1938
	Decatur & Hopkins, Boston	F.	83.12W 15.10T	.61	.42	.75	81–4W 79T	2/1938
	MIDDLESEX COUNTY FARM BUREAU, Waltham, Mass.							
1889	Spring Vetch*	L.	93.00	.25	.40	—	90	1/1938
	Middlesex County Farm Bureau, Waltham, Mass.	F.	85.47VP 13.01VS	.08	.31	1.13	95–1 VP 98 VS	7/1938

Lab. No.	Wholesale Distributor, Brand or Trade Name of Mixture, Dealer, Place Collected and Percentage of Ingredients in each Mixture	Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %
	SPECIAL SEED MIXTURES				
	BARTLETT & DOW CO., Lowell, Mass.				
1787	Shady Spot Lawn Mixture ..... L.	—	1.00	15.00	—
	Poa Trivialis, Blue Grass (6), Fescue (6), Redtop, Ryegrass (6)				
	Bartlett & Dow Co., Lowell ..... F.	92.88	.58	6.54	—
	Chewing's Fescue 25.48%				
	Redtop 21.25				
	Rough Stalked Meadow Grass 19.13				
	Kentucky Bluegrass 17.12				
	Lolium spp. (†) 9.90				
1788	Fort Hill Lawn Seed Mixture ..... L.	—	.48	6.35	—
	Kentucky Bluegrass, Redtop, Domestic Ryegrass, Chewing's Fescue, White Clover				
	Bartlett & Dow Co., Lowell ..... F.	92.00	.40	7.50	.10
	Kentucky Bluegrass 56.30%				
	Redtop 13.00				
	White Clover 8.90				
	Domestic Ryegrass 7.60				
	Chewing's Fescue 6.20				
	BERKSHIRE COAL & GRAIN CO., North Adams, Mass.				
1313	Special Lawn Seed Mixture ..... L.	94.55	1.09	4.16	.20
	Kentucky Bluegrass 22.77%, Domestic Ryegrass 31.49%, Redtop 16.73%,				
	Timothy 19.31%, White Clover 4.25%				
	C. A. Smith Grain Store, Ludlow ..... F.	95.23	.45	4.23	.09
	Redtop 26.02%				
	Domestic Ryegrass 25.65				
	Kentucky Bluegrass 22.77				
	Timothy 17.10				
	White Clover 3.69				
	JOSEPH BRECK & SONS, CORP., Boston, Mass.				
1288	Boston Park Lawn Mixture* ..... L.	—	*	*	—
	Milo H. Shattuck, Groton ..... F.	93.00	.28	6.63	.09
	Agrostis spp. 41.36%				
	(Redtop & Colonial Bent) 37.16				
	Kentucky Bluegrass 7.94				
	Meadow Fescue 4.48				
	Perennial Ryegrass 2.06				
	White Clover				

1580	Good Grade Lawn Mixture	L.	86.81	.72	12.02	—
	Redtop, White Clover, Domestic Ryegrass, Timothy (Test 2/1938)					
	C. H. Campbell Co., Inc., Newton Corners	F.	90.70	.60	7.90	.80
	Domestic Ryegrass	50.70%				
	Timothy	26.20				
	Redtop	12.30				
	White Clover (5)	1.50				
1581	Setab Lawn Mixture	L.	90.00	1.07	8.07	—
	Redtop, Timothy, White Clover, Kentucky Bluegrass (Test 2/1938)					
	C. H. Campbell Co., Inc., Newton Corners	F.	94.20	.83	4.88	.09
	Redtop	68.02%				
	Timothy	14.75				
	Kentucky Bluegrass	9.31				
	White Clover (5)	2.12				
1582	Breck's Shady Spot Lawn Mixture	L.	81.98	.68	.17	—
	Kentucky Bluegrass, Redtop, Rough Stalked Meadow Grass, Bent (6), Chewing's Fescue (Test 2/1938)					
	C. H. Campbell Co., Inc., Newton Corners	F.	78.80	.69	20.02	.49
	Rough Stalked Meadow Grass	30.71%				
	Agrostis spp. (Redtop & Creeping Bent)	27.87				
	Kentucky Bluegrass	15.31				
	Chewing's Fescue	4.91				
	COMSTOCK-FERRE & CO., Wethersfield, Conn.					
1284	Gold Seal Lawn Mixture with Clover	L.	—	.18	2.55	—
	Astoria Bent 4.40%, Kentucky Bluegrass 50.98%, White Dutch Clover 3.93%, Redtop 28.65%, Chewing's Fescue 9.31%					
	George L. Moison Hardware Co., Groton	F.	98.45	.27	1.19	.09
	Kentucky Bluegrass	52.65%				
	Agrostis spp. (Redtop & Astoria Bent)	33.21				
	Chewing's Fescue	7.21				
	White Clover	5.38				
	ALBERT DICKINSON CO., Chicago, Ill.					
1226	Globe Lawn Grass Mixture	L.	—	.75	10.72	—
	Kentucky Bluegrass 46.75%, Redtop 24.75%, Domestic Ryegrass 7.28%, Chewing's Fescue 9.75% (Test 9/1936)					
	Farm Service Stores, West Berlin	F.	91.50	.46	7.68	.36
	Kentucky Bluegrass	49.18%				
	Redtop	24.68				
	Chewing's Fescue	10.60				
	Domestic Ryegrass	7.04				

† Appears to be Italian Ryegrass.

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Mixture, Dealer, Place Collected and Percentage of Ingredients in each Mixture	Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %
	SPECIAL SEED MIXTURES — Continued				
	DOUGHTON SEED CO., Jersey City, N. J.				
1689	"Fame" Lawn Grass Mixture ..... L.	—	.97	14.95	1.49
	Domestic Ryegrass 34.63%, Germ. 90%, Kentucky Bluegrass 16.02%, Germ. 80%, Fancy White Clover 4.90%, Germ. 80%, Redtop 27.04%, Germ. 85%, (Test 2/1938)				
	Town Paint & Supply Co., Natick ..... F.	80.64	.93	14.62	3.81
	Domestic Ryegrass 33.33%				
	Redtop 25.26				
	Kentucky Bluegrass 17.05				
	White Clover 4.00				
1690	Faith Shady Lawn Seed Mixture ..... L.	—	.90	6.20	.29
	Fancy Redtop 27.20%, Germ. 90%, Rough Stalked Meadowgrass 22.65%, Germ. 90%, Domestic Ryegrass 14.89%, Germ. 90%, English Ryegrass 9.83%, Germ. 85%, N. Z. Chewing's Fescue 9.80%, Germ, 80%, Fancy Kentucky Bluegrass 8.24%, Germ. 80% (Test 2/1938)				
	Town Paint & Supply Co., Natick ..... F.	91.27	1.00	7.64	.09
	Redtop 25.27%				
	Rough Stalked Meadow Grass 21.09				
	Domestic Ryegrass 17.00				
	Chewing's Fescue 10.27				
	English Ryegrass 9.73				
	Kentucky Bluegrass 7.91				
	EASTERN SEED CO., New York, N. Y.				
1468	Grass Seed Mixture ..... L.	—	1.50	11.86	1.50
	Fancy Redtop, Kentucky Bluegrass, English Perennial Ryegrass (4), Timothy, White Clover 1% (Test 3/1938)				
	Waltham Supply Co., Waltham ..... F.	79.10	1.20	18.50	1.20
	Timothy 68.40%				
	Domestic Ryegrass (3) 8.00				
	Kentucky Bluegrass (5) 2.30				
	Redtop (5) 1.30				
	White Clover ..... .60				

	EASTERN STATES FARMERS' EXCHANGE, Worcester, Mass.					
1036	Shady Nook Lawn Mixture	L.	95.00	.50	4.25	.25
	Kentucky Bluegrass 20%–Germ. 80%, Rough Stalked Meadowgrass 30%–Germ. 80%, Fancy Solid Redtop 10%–Germ. 90%, Domestic Ryegrass 10%–Germ. 90%, Chewing's Fescue 30%–Germ. 70% (Test 12/1937)	F.	94.53	.34	5.04	.09
	Eastern States Farmer's Exchange, Worcester					
	Rough Stalked Meadow Grass 30.49%					
	Chewing's Fescue 26.23					
	Kentucky Bluegrass 18.43					
	Redtop 10.65					
	Domestic Ryegrass 8.23					
1037	Velvet Green Lawn Mixture	L.	93.25	.50	6.00	.25
	Kentucky Bluegrass 40%–Germ. 80%, R. I. Bent Grass 10%–Germ. 90%, Fancy Solid Redtop 15%—Germ. 90%, Domestic Ryegrass 20%—Germ. 85%, Chewing's Fescue 15%–Germ. 75% (Test 12/1937)	F.	94.99	.27	4.65	.09
	Eastern States Farmers' Exchange, Worcester					
	Kentucky Bluegrass 36.18%					
	Agrostis spp. (Redtop & Colonial Bent) 25.90					
	Domestic Ryegrass 17.00					
	Chewing's Fescue 15.91					
	THOMAS W. EMERSON CO., Boston, Mass.					
1054	Shady Park Lawn Mixture	L.	—	1.00	5.00	—
	Redtop 18%, Kentucky Bluegrass 5%, Rough Stalked Meadow Grass 5%, Meadow Fescue 18%, Domestic Ryegrass 38%, Timothy 5%, White Dutch Clover 5% (Test 1/1938)	F.	95.32	1.24	2.34	1.10
	Lincoln Square Paint & Hardware Co., Worcester					
	Domestic Ryegrass 37.40%					
	Redtop 23.30					
	Meadow Fescue 15.34					
	Kentucky Bluegrass 5.84					
	White Clover 5.26					
	Timothy 4.31					
	Rough Stalked Meadow Grass 3.87					
1055	Early Green Lawn Mixture	L.	—	1.00	8.00	—
	Redtop, Kentucky Bluegrass, Timothy (4), Domestic Ryegrass, White Clover	F.	94.37	.75	4.79	.09
	Lincoln Square Paint & Hardware Co., Worcester					
	Domestic Ryegrass 39.38%					
	Redtop 37.13					
	Kentucky Bluegrass 13.35					
	White Clover 4.51					

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Mixture, Dealer, Place Collected and Percentage of Ingredients in each Mixture	Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %
	SPECIAL SEED MIXTURES — Continued				
	THOMAS W. EMERSON CO.—Concluded				
1091	Special Mixed Lawn Seed ..... L.	—	.50	4.3	—
	Redtop, Kentucky Bluegrass, Chewing's Red Fescue, White Clover, German Bent Grass (4) (Test 1/1938)				
	Hamilton Hardware Co., Clinton ..... F.	94.02	.37	5.24	.37
	Agrostis spp. (Redtop & Colonial Bent) (3) 66.12%				
	Kentucky Bluegrass 16.80				
	Chewing's Fescue 7.48				
	White Clover (5) 3.62				
1612	Putting Green Lawn Seed Mixture ..... L.	—	.4	4.6	—
	Redtop 49%, Kentucky Bluegrass 27.2%, Chewing's Fescue 8.8%, Astoria B. T. Bent 5.0%, N. Z. B. T. Bent 5.0%				
	Thomas W. Emerson Co., Boston ..... F.	97.87	.39	1.64	.10
	Agrostis spp. (Redtop & Colonial Bent) 58.86%				
	Kentucky Bluegrass 29.18				
	Chewing's Fescue 9.83				
1645	Gem Lawn Seed ..... L.	—	.50	7.00	—
	Redtop, Kentucky Bluegrass, Chewing's Fescue, Astoria Bent, White Dutch Clover (4) (Test 1/1938)				
	Farm Service Co., North Abington ..... F.	90.90	.70	8.30	.10
	Agrostis spp. (Redtop & Colonial Bent) 66.00%				
	Kentucky Bluegrass 19.60				
	Chewing's Fescue 5.30				
	FARM SERVICE CO., Waltham, Mass.				
1470	Lawn Seed Mixture ..... L.	—	*	*	—
	Timothy 30%, Redtop 50%, White Clover 10%, Bluegrass 20% (6)				
	Farm Service Co., Waltham ..... F.	92.71	.84	6.36	.09
	Redtop 44.62%				
	Timothy 24.23				
	Kentucky Bluegrass 13.94				
	White Clover 9.92				

	FITCHBURG HARDWARE CO., Fitchburg, Mass.					
1246	Bent and Fescue Mixture	L.	91.50	.76	7.74	—
	Colonial Bent, Chewing's Fescue, Kentucky Bluegrass, Fancy Redtop					
	Fitchburg Hardware Co., Fitchburg	F.	90.34	.71	8.74	.21
	Agrostis spp. (Redtop & Colonial Bent)	53.00%				
	Chewing's Fescue	19.33				
	Kentucky Bluegrass	18.01				
1352	English Lawn Seed Mixture	L.	91.60	.75	7.65	—
	Fancy Redtop, Kentucky Bluegrass, Chewing's Fescue (N. Z.), White Clover, Domestic Ryegrass, Choice Timothy					
	Fitchburg Hardware Co., Fitchburg	F	90.17	2.63	7.10	.10
	Redtop	27.72%				
	Timothy	20.62				
	Domestic Ryegrass	17.31				
	Kentucky Bluegrass	14.59				
	Chewing's Fescue	6.23				
	White Clover (5)	3.70				
	CHARLES C. HART SEED CO., Wethersfield, Conn.					
1469	Hart's Permanent Grass Mixture	L.	90.97	.49	8.54	—
	Astoria Bent Grass, Chewing's Fescue, Kentucky Bluegrass, Fancy Redtop (Test 1/1938)					
	West End Hardware Co., Waltham	F.	91.62	.58	7.51	.29
	Agrostis spp. (Redtop & Astoria Bent)	44.75%				
	Kentucky Bluegrass	37.73				
	Chewing's Fescue	9.14				
1544	Shadow Blend Lawn Mixture	L.	88.72	.74	10.54	—
	Domestic Ryegrass 24.84%, Fancy Redtop 28.66%, Rough Stalked Meadow Grass 10.84%, Meadow Fescue 24.68%					
	Sawyer's Hardware Co., Framingham	F.	88.75	1.01	10.05	.19
	Redtop	27.47%				
	Meadow Fescue	25.05				
	Domestic Ryegrass	21.88				
	Rough Stalked Meadow Grass	14.15				
1591	Lawn Seed, Competition Mixture	L.	90.45	.66	8.89	—
	Domestic Ryegrass 28.42%, Fancy Timothy 39.84%, Fancy Redtop 16.79%, Kentucky Bluegrass 4.42%, White Clover .98%					
	Square Hardware Co., Watertown	F.	90.21	.39	9.40	—
	Timothy	40.22%				
	Domestic Ryegrass	26.65				
	Redtop	17.63				
	Kentucky Bluegrass	4.45				
	White Clover	1.26				

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Mixture, Dealer, Place Collected and Percentage of Ingredients in each Mixture		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %
	SPECIAL SEED MIXTURES — Continued					
	J. OLIVER JOHNSON SEED CO., Chicago, Ill.					
1404	Lincoln Park Mixed Lawn Grass Seed	L.	—	1.00	14.88	—
	Kentucky Bluegrass 40%, Fancy Redtop 18.40%, White Clover 1.00%, Italian Ryegrass 24.72%					
	Decatur & Hopkins, Boston	F.	83.99	1.01	14.90	.10
	Kentucky Bluegrass	40.96%				
	Italian Ryegrass	22.11				
	Redtop	19.74				
	White Clover	1.18				
1405	Winner Lawn Mixture	L.	—	1.00	14.02	—
	Fancy Redtop 12%, Domestic Ryegrass 30.38%, Kentucky Bluegrass 8.00%, Timothy 33.60%, White Clover 1.00% (Test 1/1938)					
	Decatur & Hopkins, Boston	F.	82.00	1.00	16.90	.10
	Domestic Ryegrass	31.00%				
	Timothy	30.90				
	Redtop	11.10				
	Kentucky Bluegrass	8.20				
	White Clover	.80				
1406	Boulevard Mixed Lawn Grass Seed	L.	—	1.00	14.31	—
	Fancy Kentucky Bluegrass 48%, Fancy Redtop 26.55%, White Clover 4.75%, Astoria Bent 5.39%					
	Decatur & Hopkins, Boston	F.	85.94	.38	11.02	2.66
	Kentucky Bluegrass	49.15%				
	Agrostis spp. (Redtop & Colonial Bent)	32.70				
	White Clover	4.09				
1407	Shady Place Mixed Lawn Grass Seed	L.	—	1.00	13.54	—
	Fancy Redtop 22.00%, Poa Trivialis 17%, Domestic Ryegrass 26.46%, Kentucky Bluegrass 20%					
	Decatur & Hopkins, Boston	F.	85.35	.69	13.67	.29
	Domestic Ryegrass	29.11%				
	Redtop	20.45				
	Rough Stalked Meadow Grass	18.58				
	Kentucky Bluegrass	17.21				

1408	Velour Lawn Mixture	L.	—	1.00	12.48	—
	Fancy Kentucky Bluegrass 24%, Fancy Redtop 34.10%, White Clover 2.94%, Domestic Ryegrass 25.48%					
	Decatur & Hopkins, Boston	F.	80.68	.98	16.70	1.64
	Redtop	33.01%				
	Kentucky Bluegrass	24.03				
	Domestic Ryegrass	19.30				
	White Clover	4.34				
	D. LANDRETH SEED CO., Bristol, Pa.					
1159	Fairmount Park Lawn Grass Mixture	L.	83.93	.90	14.70	.47
	Redtop, Ryegrass (6), Kentucky Bluegrass, Meadow Fescue, White Dutch Clover					
	P. A. Richard Hardware Co., Spencer	F.	88.60	.80	8.50	2.10
	Redtop	49.80%				
	Kentucky Bluegrass	24.50				
	Meadow Fescue	8.00				
	White Clover (5)	3.60				
	Domestic Ryegrass (5)	2.70				
	JOHN D. LYON SEED CO., Belmont Mass.					
1706	Grass Seed Mixture*	L.	—	*	*	—
	Raymond Bros. Co., Natick	F.	79.61	.97	17.10	2.32
	Timothy	35.27%				
	Domestic Ryegrass	30.14				
	Redtop	14.20				
1711	Special Lawn Seed Mixture	L.	—	*	*	—
	Fancy Redtop, Kentucky Bluegrass, Meadow Fescue, Domestic Ryegrass, White Clover					
	Raymond Bros. Co., Natick	F.	89.90	.60	9.30	.20
	Redtop	38.00%				
	Kentucky Bluegrass	35.40				
	Domestic Ryegrass	7.30				
	Meadow Fescue	4.60				
	White Clover	4.60				
	MONTGOMERY HARDWARE CO., Ayer, Mass.					
1306	Lawn Grass Mixture	L.	—	.60	9.30	—
	Redtop, Kentucky Bluegrass, Domestic Ryegrass, White Clover					
	Montgomery Hardware Co., Ayer	F.	88.01	1.43	10.09	.47
	Kentucky Bluegrass	42.34%				
	Redtop	28.54				
	Domestic Ryegrass	10.75				
	White Clover	6.38				

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Mixture, Dealer, Place Collected and Percentage of Ingredients in each Mixture		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %
	SPECIAL SEED MIXTURES — Continued					
	PAGE SEED CO., Greene, N. Y.					
1125	Marvelawn, Special Lawn Seed Mixture No. 14237	L.	94.06	.59	4.96	—
	Kentucky Bluegrass 13.05%, White Clover 6.58%, Meadow Fescue 2.85%, Redtop 29.86%, Rough Stalked Meadow Grass 13.04%, Perennial Ryegrass 13.35%, Timothy 15.32% (Test 3/1937)	F.	94.81	.27	4.92	—
	John F. Robinson, Ware					
	Redtop	23.86%				
	Timothy	17.85				
	Perennial Ryegrass	14.76				
	Kentucky Bluegrass	12.20				
	Rough Stalked Meadow Grass	12.20				
	White Clover	7.47				
	Meadow Fescue	6.47				
1241	Marvelawn, Special Lawn Seed Mixture*	L.	—	*	*	—
	Bowen & Fuller, Leominster	F.	94.76	.26	4.20	.78
	Redtop	30.45%				
	Timothy	15.58				
	Kentucky Bluegrass	15.57				
	Perennial Ryegrass	11.38				
	Rough Stalked Meadow Grass	9.54				
	White Clover	7.26				
	Meadow Fescue	4.98				
	PEDIGREED SEED CO., New York, N. Y.					
1395	Marvelawn, Lawn Seed Mixture	L.	—	1.00	17.00	—
	Redtop, Timothy, Kentucky Bluegrass, 3% White Clover, Domestic Ryegrass (Test 1/1937)	F.	80.95	1.05	17.62	.38
	Fred's Hardware Store, Westboro					
	Timothy	31.90%				
	Domestic Ryegrass	24.72				
	Kentucky Bluegrass	12.26				
	Redtop	8.62				
	White Clover	3.45				
	ROSS BROS. CO., Worcester, Mass.					
1010	Special Mixed Lawn Seed (Green Hill)	L.	—	.75	4.78	—
	Astoria Bent, Redtop Domestic Ryegrass, Kentucky Bluegrass (Test 1/1938)	F.	94.82	.46	4.72	—
	Ross Bros. Co., Worcester					
	Agrostis spp. (Redtop & Astoria Bent)	50.83%				
	Kentucky Bluegrass	27.14				
	Domestic Ryegrass	16.85				

1011	Shady Lawn Mixture	L.	—	.55	4.51	—
	Redtop, Astoria Bent, Kentucky Bluegrass, Rough Stalked Meadow Grass, Chewing's Fescue (Test 1/1938)					
	Ross Bros. Co., Worcester	F.	94.01	.47	5.52	—
	Agrostis spp. (Redtop & Astoria Bent) 52.16%					
	Kentucky Bluegrass 17.92					
	Rough Stalked Meadow Grass 16.70					
	Chewing's Fescue 6.94					
	STANFORD SEED CO., Buffalo, N. Y.					
1013	Lawn Seed Mixture (Liberty)	L.	—	1.00	15.53	—
	White Clover 6.86%, Kentucky Bluegrass 16.15%, Redtop 26.80%, Perennial Ryegrass 18.81%, Timothy 14.80% (Test 2/1938)					
	City Grain Co., Marlboro	F.	83.70	1.10	14.80	.40
	Redtop 26.80%					
	Timothy 18.00					
	Perennial Ryegrass 17.30					
	Kentucky Bluegrass 16.90					
	White Clover 4.70					
1242	Lawn Seed Mixture No. 5001	L.		1.00	15.53	—
	White Clover 6.86%, Kentucky Bluegrass 16.15%, Redtop 26.80%, Perennial Ryegrass 18.81%, Timothy 14.85%					
	Littleton Coal & Grain Co., Littleton	F.	86.05	1.30	12.19	.46
	Redtop 28.00%					
	Timothy 17.58					
	Perennial Ryegrass 16.93					
	Kentucky Bluegrass 15.07					
	White Clover 8.47					
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.					
1261	Excelsior Lawn Seed Mixture	L.		.70	8.00	2.30
	Kentucky Bluegrass N. Z. Chewing's Fescue, Fancy Redtop, Fancy White Clover					
	Farm Service Stores, Fitchburg	F.	88.81	1.00	8.45	1.74
	Redtop 46.43%					
	Kentucky Bluegrass 32.45					
	White Clover 5.80					
	Chewing's Fescue 1.13					
1589	Quick Green Lawn Seed Mixture*	L.		2.00	18.00	2.00
	Fletcher Hardware Co., Watertown	F.	81.09	1.16	15.42	2.33
	Domestic Ryegrass 35.99%					
	Timothy 33.85					
	Redtop 11.25					

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Mixture, Dealer, Place Collected and Percentage of Ingredients in each Mixture		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %
	SPECIAL SEED MIXTURES — Concluded					
	WHITNEY ECKSTEIN SEED CO. — Concluded					
	Fletcher Lawn Seed Mixture*	L.	—	.70	8.00	2.30
1590	Fletcher Hardware Co., Watertown	F.	91.85	**1.86**	6.19	.10
	Kentucky Bluegrass	28.78%				
	White Clover	7.96				
	Chewing's Fescue	4.62				
	Redtop	50.49				
	F. H. WOODRUFF & SONS, Milford, Conn.					
1170	Park Lawn Grass Seed Mixture (7)	L.	—	1.00	12.20	—
	Kentucky Bluegrass 8.50%, Redtop 18%, Domestic Ryegrass 58.50%, White Clover 1.80% (4)—(Test 1/1937)	F.	88.70	.65	9.25	1.40
	A. S. Tucker, Warren	39.22%				
	Kentucky Bluegrass	35.48				
	Redtop	14.00				
	Domestic Ryegrass					
	UNKNOWN					
1093	Lawn Seed*	L.	—	*	*	—
	John Wrona, Indian Orchard	F.	83.36	.74	13.68	2.22
	Kentucky Bluegrass	37.33%				
	Redtop	37.22				
	Chewing's Fescue	4.56				
	White Clover	4.25				

GERMINATION OF SEEDS CONTAINED IN SPECIAL SEED MIXTURES

Number Tested	Name of Seed	GERMINATION PERCENT Lowest	Highest	Average
42	Kentucky Bluegrass	18	93	63.88
35	Redtop	23	96	84.25
30	White Clover	57	88	75.90
			Hard seed 9.3	
25	Domestic Ryegrass	71	97	91.48
20	Chewing's Fescue	2	90	47.80
17	Timothy	53	95	78.88

Number Tested	Name of Seed	GERMINATION PERCENT Lowest	Highest	Average
12	Agrostis spp. Redtop and Colonial Bent.	80	92	87.75
10	Rough Stalked Meadow Grass	50	90	72.50
6	Meadow Fescue	55	96	86.35
6	Perennial Ryegrass	77	90	84.57
2	Italian Ryegrass	89	93	91.00
1	Agrostis spp. Redtop and Creeping Bent.	86	86	86.00

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	Germination Found %	Month of Test 1938
	ASPARAGUS		
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.		
1326	Mary Washington	81	June
	(Wholesaler's germination test 86%-1938) Eastern States Farmers' Exchange, Springfield		
	BEANS		
	COMSTOCK-FERRE & CO., Wethersfield, Conn.		
1120	Burpee's Stringless — A. E. Wardell, New Bedford	96	April
1121	Kentucky Wonder Green Pod — A. E. Wardell, New Bedford	87	April
1375	French Dwarf Horticultural — J. S. Nason & Co., Westboro	90	May
1376	Kentucky Wonder Wax — J. S. Nason & Co., Westboro	98	May
1377	Bountiful — J. S. Nason & Co., Westboro	98	May
1378	Pencil Pod Black Wax — J. S. Nason & Co., Westboro	97	May
1379	Burpee's Stringless Greenpod — J. S. Nason & Co., Westboro	96	May
1380	Golden Wax — J. S. Nason & Co., Westboro	85	May
	EASTERN STATES FARMERS' EXCHANGE, Worcester, Mass.		
1020	French Horticultural, Mottled Red Green Pod, Lot No. 15218 (Wholesaler's germination test 98%-1937) Eastern States Farmers' Exchange, Worcester	98	May
1021	Pencil Pod Wax, Lot No. 2F 32,217 (Wholesaler's Germination test 87% 1/1938) Eastern States Farmers' Exchange, Worcester	88	May
1022	Stringless Green Pod, Lot No. 2C 3317 (Wholesaler's Germination Test, 87%—1937) Eastern States Farmers' Exchange, Worcester	91	May
	THOMAS W. EMERSON CO., Boston, Mass.		
1061	Burpee's Stringless Greenpod — Lincoln Square Paint & Hardware Co., Worcester	94	April
1078	Dwarf Horticultural — Wallace Grain Co., Clinton	95	April
1080	Kentucky Wonder Greenpod — Wallace Grain Co., Clinton	94	May
1559	Burpee's Lima Bush — Goodman Hardware Co., Framingham	74	May
1600	Scarlet Runner — Thomas W. Emerson Co., Boston	95	May
1601	French Dwarf Horticultural Bush — Thomas W. Emerson Co., Boston	99	May
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
1063	Pencil Pod Black Wax—Low Bush — Waite's Hardware Co., Worcester	90	May
1111	Golden Wax — Saunders Hardware Co., Middleboro	90	May
1232	Pole Horticultural — Leominster Hardware Co., Leominster	97	May

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1938 Month of Test
	BEANS — Continued		
	CHARLES C. HART SEED CO. — Concluded		
1233	Round Pod Kidney Wax Leominster Hardware Co., Leominster	97	May
1238	Six Weeks' Green Gavin Hardware Co., Leominster	97	May
1539	Burpee's Stringless Greenpod Sawyer's Hardware Co., Framingham	93	June
1540	Dwarf Horticultural Sawyer's Hardware Co., Framingham	91	June
1541	Pencil Pod Black Wax Sawyer's Hardware Co., Framingham	89	June
1588	Unrivalled Wax Fletcher Hardware Co., Watertown	97	May
	HOLBROOK-MARSHALL CO., Nashua, N. H.		
1845	Yellow Refugee Harvey Brown, Billerica	86	June
	D. LANDRETH SEED CO., Bristol, Pa.		
1049	Brittle Wax, No. 3823 Elwood Adams, Worcester	79	April
1158	Top Notch Golden Wax P. A. Richard Hardware Co., Spencer	77	May
	MICHAEL LEONARD SEED CO., Chicago, Ill.		
1561	Improved Golden Wax St. George Hardware Co., Framingham	89	June
1562	Pencil Pod Black Wax St. George Hardware Co., Framingham	95	June
1563	Webber Wax St. George Hardware Co., Framingham	90	June
1564	Kentucky Wonder Wax St. George Hardware Co., Framingham	97	May
1567	Dwarf Greenpod St. George Hardware Co., Framingham	91	June
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
1100	Early Red Valentine George E. Doane, Middleboro	94	April
1101	Bountiful George E. Doane, Middleboro	92	April
1102	Davis White Wax George E. Doane, Middleboro	78	April
1103	Golden Wax Dwarf George E. Doane, Middleboro	95	April
1104	Black Wax Dwarf George E. Doane, Middleboro	91	April
1134	Golden Wax Dwarf R. E. Faulkner & Co., Palmer	74	May
1135	Surecrop Wax R. E. Faulkner & Co., Palmer	98	May
1200	Pencil Pod Black Wax H. S. Chadbourne Co., Milford	95	May
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
1204	Black Wax Dwarf Podded H. S. Chadbourne Co., Milford	90	May
1205	Improved Golden Wax H. S. Chadbourne Co., Milford	60	May

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1938 Month of Test
	BEANS — Concluded		
	JEROME B. RICE SEED CO. — Concluded		
1510	Red Kidney Lamson Hardware Co., Marlboro	90	May
1511	Kentucky Wonder Wax (Pole) Lamson Hardware Co., Marlboro	98	May
1512	Burpee's Stringless Greenpod Lamson Hardware Co., Marlboro	90	June
1587	Wardwell's Wax Fletcher Hardware Co., Watertown	90	May
	ROSS BROS. CO., Worcester, Mass.		
1166	Pencil Pod Black Wax Allen Wheeler, Clover Farm, West Brookfield	96	May
1167	Dwarf Horticultural Allen Wheeler, Clover Farm, West Brookfield	96	May
1386	Golden Wax Swan's Hardware Co., Westboro	69	May
	F. H. WOODRUFF & SONS, Milford, Conn.		
1525	Kentucky Wonder (Old Homestead) Robinson's Hardware Co., Hudson	97	June
1526	Golden Wax Robinson's Hardware Co., Hudson	97	June
1527	Kentucky Wonder Wax Robinson's Hardware Co., Hudson	97	June
1528	Goddard Robinson's Hardware Co., Hudson	96	June
1529	Worcester Pole Robinson's Hardware Co., Hudson	83	June
1545	Lima Boston Supply Co., Framingham	86	June
1546	Improved Golden Wax Boston Supply Co., Framingham	96	June
1547	Bountiful Boston Supply Co., Framingham	95	June
1549	Six Weeks' Long Yellow Boston Supply Co., Framingham	97	June
1550	King Horticultural Boston Supply Co., Framingham	84	June
	S. D. WOODRUFF & SONS, Orange, Conn.		
1270	Improved Yellow Eye Central Hardware Co., Fitchburg	95	May
1534	Dwarf Yellow Eye Aubuchon Co., Hudson	90	June
1535	Improved Golden Wax Aubuchon Co., Hudson	90	June
1536	Black Wax Dwarf Aubuchon Co., Hudson	97	June
1537	Kentucky Wonder Aubuchon Co., Hudson	88	June
	WHOLESALER UNKNOWN		
1538	Lowe's Champion Sawyer's Hardware Co., Framingham	79	June

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1938 Month of Test
	BEETS		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
1420	Crosby's Egyptian Pebeco Hardware Co., Wellesley	77	June
1577	Crosby's Red Egyptian C. H. Campbell Co., Inc., Newton Corners	76	June
1579	Detroit Dark Red C. H. Campbell Co., Inc., Newton Corners	86	June
1583	Dewing's Early Blood Moore & Moore, Inc., Newton Corners	90	June
	COMSTOCK-FERRE & CO., Wethersfield, Conn.		
1183	Detroit Dark Red Adams & Co., Holliston	65	October
1278	Crosby's Egyptian George L. Moison Hardware Co., Groton	86	June
	EASTERN STATES FARMERS' EXCHANGE, Worcester, Mass.		
1028	Late Market Globe Eastern States Farmers' Exchange, Worcester	91	June
	EASTERN STATES FARMERS' EXCHANGE, West Springfield, Mass.		
1335	Detroit Late Market Globe No. 3, C 2217 (Wholesaler's Germination Test, 74%–12/1937) Eastern States Farmers' Exchange, West Springfield	86	June
1336	Crosby's Early Wonder No. 3 B 24117 (Wholesaler's Germination Test, 72%–12/1937) Eastern States Farmers' Exchange, West Springfield	73	June
	THOMAS W. EMERSON CO., Boston, Mass.		
1001	Detroit Dark Red P. H. Adams, Northboro	92	June
1081	Detroit Dark Red Wallace Grain Co., Clinton	93	June
1555	Crosby's Egyptian Goodman Hardware Co., Framingham	96	June
1606	Dewing's Thomas W. Emerson Co., Boston	75	June
	FERRY-MORSE SEED CO., Detroit, Mich.		
1322	Detroit Dark Red Carlisle Hardware Co., West Springfield	88	June
	FRASER'S, Wellesley, Mass.		
1440	Boston Crosby's (Wholesaler's Germination Test, 80%–1/1938) Fraser's, Wellesley	83	June
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
1110	Detroit Dark Red Saunder's Hardware Co., Middleboro	94	June
1112	Crosby's Egyptian (Wholesaler's Germination Test, 75%) Saunder's Hardware Co., Middleboro	79	June
1576	Crosby's Egyptian Watertown Paint & Hardware Co., Watertown	69	June
1935	Early Wonder (Wholesaler's Germination Test, 70% or better–1/1938) F. H. Turner & Co., Great Barrington	83	June
	BUDD D. HAWKINS, Reading, Vt.		
1072	New Eclipse Early Blood Turnip Brockelman Bros., Inc., Worcester	83	June
1073	Crosby's Egyptian Brockelman Bros., Inc., Worcester	79	June

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1938 Month of Test
	BEETS — Concluded		
	MICHAEL LEONARD SEED CO., Chicago, Ill.		
1572	Detroit Dark Red	58	June
	St. George Hardware Co., Framingham		
	NORTHRUP, KING & CO., Minneapolis, Minn.		
1299	Extra Early Crosby's Egyptian	75	June
	Aubuchon Hardware Co., Ayer		
	PERRY SEED CO., Boston, Mass.		
1586	Early Wonder	68	June
	Fletcher Hardware Co., Watertown		
1682	Crosby's Egyptian	73	June
	Perry Seed Co., Boston		
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
1585	Early Crosby	78	June
	Fletcher Hardware Co., Watertown		
1916	Early Blood	89	June
	(Wholesaler's Germination Test, 88%)		
	Frank Howard, Inc., Pittsfield		
	ROSS BROS. CO., Worcester, Mass.		
1164	Early Egyptian	89	June
	Allen Wheeler (Clover Farm), West Brookfield		
1388	Crosby's Egyptian	89	June
	Swan's Hardware Store, Westboro		
1394	Edmand's Blood Turnip	96	June
	Fred's Hardware Store, Westboro		
	F. H. WOODRUFF & SONS, Milford, Conn.		
1128	Early Blood	85	June
	J. B. Sibley & Son, Ware		
1129	Crosby's Egyptian	76	June
	J. B. Sibley & Son, Ware		
1179	Early Wonder	85	June
	Leona Trespacz, West Warren		
1552	Woodruff's Early Wonder	74	June
	Boston Supply Co., Framingham		
	S. D. WOODRUFF & SONS, Orange, Conn.		
1221	Early Wonder No. 1026	81	June
	(Wholesaler's Germination Test, 1/1938)		
	Farm Service Store, Berlin		
	BROCCOLI		
	JOSEPH BRECK & SONS CORP., Boston, Mass.		
1497	Raab Spring—Lot No. 6351W	88	June
	Joseph Breck & Sons Corp., Boston		
1592	Idaho Green Sprouting	91	June
	H. V. Lawrence, Falmouth		
	EASTERN STATES FARMERS' EXCHANGE, West Springfield, Mass.		
2025	Calabrese-4 A-13717	85	June
	(Wholesaler's Germination Test, 81%)		
	Essex County Cooperative Association, Topsfield		
	THOMAS W. EMERSON CO., Boston, Mass.		
1607	Green Sprouting	87	June
	Thomas W. Emerson Co., Boston		
	FRASER'S, Wellesley, Mass.		
1433	Special Italian	94	June
	(Wholesaler's Germination Test 90%—1/1938)		
	Fraser's, Wellesley		
	F. H. WOODRUFF & SONS, Milford, Conn.		
1454	Calabrese	64	June
	Marlboro Hardware Co., Marlboro		

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1938 Month of Test
	BRUSSELS SPROUTS		
	EASTERN STATES FARMERS' EXCHANGE, Worcester, Mass.		
1044	Half Dwarf No. 5 A 1617 (Wholesaler's Germination Test, 88%–1/1938) Eastern States Farmers' Exchange, Worcester	91	April
	CABBAGE		
	JOSEPH BRECK & SONS CORP., Boston, Mass.		
1490	Warren Stone Mason No. 8298A. Joseph Breck & Sons Corp., Boston	85	June
1491	Danish Ballhead Longstem No. 8016F. Joseph Breck & Sons Corp., Boston	78	June
1492	Premium Drumhead No. 5220C. Joseph Breck & Sons Corp., Boston	80	June
	W. F. COBB CO., Franklin, Mass.		
1812	American Drumhead Savoy. W. F. Cobb Co., Franklin	61	June
	COMSTOCK-FERRE & CO., Wethersfield, Conn.		
1280	Wakefield Early Jersey (2). George L. Moison Hardware Co., Groton	5	June
	THOMAS W. EMERSON CO., Boston, Mass.		
1197	Late Flat Dutch. F. A. Gould, Milford	87	June
1214	Early Winnigstadt. Uxbridge Hardware Co., Uxbridge	0	June
1215	Early Jersey Wakefield. Uxbridge Hardware Co., Uxbridge	92	June
	EASTERN STATES FARMERS' EXCHANGE, Worcester, Mass.		
1033	Short Stem Ballhead, Lot No. 418 (Wholesaler's Germination Test, 90%–12/1937) Eastern States Farmers' Exchange, Worcester	93	April
1034	Drumhead-Savoy, Flat, Late Lot No. 6 J 1425 (Wholesaler's Germination Test, 86%–12/1937) Eastern States Farmers' Exchange, Worcester	84	April
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
1067	Danish Ballhead. Waite's Hardware Co., Worcester	72	April
1234	Premium Late Flat Dutch. Leominster Hardware Co., Leominster	18	June
	D. LANDRETH SEED CO., Bristol, Pa.		
1162	Danish Ballhead-Short Stem. P. A. Richard Hardware Co., Spencer	35	June
	LEONARD SEED CO., Chicago, Ill.		
1819	Improved American Savoy. Kingman Hardware Co., Franklin	70	October
	ROSS BROS. CO., Worcester, Mass.		
1171	Stone Mason. A. S. Tucker, Warren	69	June
1175	Copenhagen Market. A. S. Tucker, Warren	2	June
1390	Danish Ballhead. Fred's Hardware Store, Westboro	62	June
1391	Copenhagen Market. Fred's Hardware Store, Westboro	57	June
	STERLING SEED CO., Minneapolis, Minn.		
1476	Danish Ballhead-Short Stem Strain (Packed for 1938) Grant's Store, Waltham	77	June

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1938 Month of Test
	CABBAGE — Concluded		
	F. H. WOODRUFF & SONS, Milford, Conn.		
1348	Golden Acre James Splann Estate, South Deerfield	54	June
1349	Red Rock James Splann Estate, South Deerfield	56	June
1453	Late Drumhead Savoy Marlboro Hardware Co., Marlboro	96	June
	UNKNOWN		
1283	Penn State No. 3 George L. Moison Hardware Co., Groton	82	June
	CARROTS		
	JOSEPH BRECK & SONS CORP., Boston, Mass.		
1422	Long Orange Peboco Hardware Co., Wellesley	82	May
1421	Danvers Half Long Peboco Hardware Co., Wellesley	68	May
1486	Danvers Half Long No. 8020H Joseph Breck & Sons Corp., Boston	62	May
1487	Long Orange No. 8025H Joseph Breck & Sons Corp., Boston	77	May
1488	Chantenay No. 8234X Joseph Breck & Sons Corp., Boston	72	May
1489	Breck's Market Garden Danvers Half Long No. 8339 Joseph Breck & Sons Corp., Boston	69	May
	COMSTOCK-FERRE & CO., Wethersfield, Conn.		
1094	Hutchinson W. M. Lee Co., Clinton	74	April
1096	Danvers Half Long Orange W. M. Lee Co., Clinton	79	April
1279	Improved Danvers Half Long George L. Moison Hardware Co., Groton	72	May
1694	Chantenay Lockhart Hardware Co., Natick	64	April
	EASTERN STATES FARMERS' EXCHANGE, West Springfield, Mass.		
1329	Danvers Half Long Tapering Late Eastern States Farmers' Exchange, West Springfield	65	May
1330	Nantes Long No. 7 A 32127 (Wholesaler's Germination Test, 70%–12/1937) Eastern States Farmers' Exchange, West Springfield	86	May
1331	Hutchinson No. 7 A 1617 (Wholesaler's Germination Test, 79%-12/1937) Eastern States Farmers' Exchange, West Springfield	89	May
	THOMAS W. EMERSON CO., Boston, Mass.		
1002	Danvers Half Long P. H. Adams Hardware Co., Northboro	66	April
1211	Improved Long Orange Uxbridge Hardware Co., Uxbridge	66	May
1557	Improved Long Orange Goodman Hardware Co., Framingham	65	May
1610	Danvers Half Long Thomas W. Emerson Co., Boston	68	May
1611	Improved Long Orange Thomas W. Emerson Co., Boston	77	May

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1938 Month of Test
	CARROTS — Concluded		
	FERRY-MORSE SEED CO., Detroit, Mich.		
1320	Danvers Half Long Carlisle Hardware Co., West Springfield	54	October
	FITCHBURG HARDWARE CO., Fitchburg, Mass.		
1256	Chantenay Fitchburg Hardware Co., Fitchburg	77	May
	FRASER'S, Wellesley, Mass.		
1441	Morse's Bunching (Wholesaler's germination test 75%—1938) Fraser's Wellesley	76	May
1442	Danvers Half Long (Wholesaler's germination test 80%–1938) Fraser's Wellesley	76	May
1443	Chantenay (Wholesaler's germination test 80%—1938) Fraser's Wellesley	77	June
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
1068	Long Orange Waite's Hardware Co., Worcester	69	April
1069	Danvers Half Long Waite's Hardware Co., Worcester	71	April
1236	New Oxheart Orange Leominster Hardware Co., Leominster	59	May
1575	Danvers Half Long Stump Rooted Watertown Paint & Hardware Co., Watertown	63	May
	BUDD D. HAWKINS, Reading, Vt.		
1521	Danvers Half Long Orange Lamson Hardware Co., Marlboro	61	May
1522	Improved Long Orange Lamson Hardware Co., Marlboro	66	May
1523	Oxheart Lamson Hardware Co., Marlboro	43	May
	ROSS BROS. CO., Worcester, Mass.		
1165	Danvers Half Long Allen Wheeler, Clover Farm, West Brookfield	81	April
	F. H. WOODRUFF & SONS, Milford, Conn.		
1130	Danvers Half Long J. B. Sibley & Son, Ware	75	April
	S. D. WOODRUFF & SONS, Orange, Conn.		
1263	Chantenay Central Hardware Co., Fitchburg	65	May
	CAULIFLOWER		
	JOSEPH BRECK & SONS CORP., Boston, Mass.		
1498	White Bouquet No. 6380 H Joseph Breck & Sons Corp., Boston	63	June
	EASTERN STATES FARMERS' EXCHANGE, West Springfield, Mass.		
1332	Danish Early Snowball Eastern States Farmers' Exchange, West Springfield	85	July
2026	Super Snowball No. 5118 (Wholesaler's germination test 87%—12/1937) Eastern States Farmers' Exchange, West Springfield	91	June
	G. W. GARDINER & SONS, Fall River, Mass.		
1838	Dry Weather G. W. Gardiner & Son, Fall River	90	June

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1938 Month of Test
	CAULIFLOWER — Concluded		
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.		
1901	Super Snowball (Wholesaler's germination test 92%—1/1938) Joseph Harris Co., Inc., Warehouse, Cambridge	78	June
	W. G. PEARSE & CO., Fall River, Mass.		
1840	Snowball Wm. G. Pearse & Co., Fall River	78	June
	CELERY		
	THOMAS W. EMERSON CO., Boston, Mass.		
1193	Giant Pascal F. A. Gould, Milford	87	April
1194	Self Blanching Golden Yellow F. A. Gould, Milford	50	April
	EASTERN STATES FARMERS' EXCHANGE, West Springfield, Mass.		
1327	Golden Plume (Cal.) Lot No. 9 A 2827 (Wholesaler's germination test 71%-12/1937) Eastern States Farmer's Exchange, West Springfield	58	August
	PERRY SEED CO., Boston, Mass.		
1662	Golden Self Blanching Perry Seed Co., Boston	79	May
1663	New Golden Plume Perry Seed Co., Boston	79	May
1712	Early Blanching Perry Seed Co., Boston	52	May
	STERLING SEED CO., Minneapolis, Minn.		
1475	Golden Self Blanching (Packed for 1938) Grant's Store, Waltham	75	May
	CORN		
	COMSTOCK-FERRE & CO., Wethersfield, Conn.		
1374	Bantam Evergreen (Wholesaler's germination test-1937) J. S. Nason & Co., Westboro	84	May
1381	Golden Bantam J. S. Nason & Co., Westboro	97	May
1382	Whipple's Sweet J. S. Nason & Co., Westboro	90	May
1383	Golden Sunrise J. S. Nason & Co., Westboro	96	May
	ARTHUR R. CONE, Buffalo, N. Y.		
1361	Golden Bantam Sweet No. 50-57 (Wholesaler's germination test 92%-2/1937) Sunshine Feed Store, Greenfield	93	May
1364	Bantam Evergreen No. 50-74 (Wholesaler's germination test 93%-2/1937) Sunshine Feed Store, Greenfield	89	May
	THOMAS W. EMERSON CO., Boston, Mass.		
1056	Bantam Evergreen (Wholesaler's germination test-1937) Lincoln Square Paint & Hardware Co., Worcester	89	April
1057	Country Gentleman (Wholesaler's germination test-1937) Lincoln Square Paint & Hardware Co., Worcester	87	April
1058	Golden Sunshine (Wholesaler's germination test-1937) Lincoln Square Paint & Hardware Co., Worcester	92	April

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1938 Month of Test
	CORN — Continued		
	THOMAS W. EMERSON CO. — Concluded		
1225	Golden Sunshine Farm Service Store, West Berlin	92	May
1393	Golden Bantam Taft Bros., Uxbridge	96	May
1396	Stowell's Evergreen Taft Bros., Uxbridge	95	May
1397	Bantam Evergreen Taft Bros., Uxbridge	90	May
1602	Crosby Thomas W. Emerson Co., Boston	98	May
1603	Evergreen Thomas W. Emerson Co., Boston	90	May
	EASTERN STATES FARMERS' EXCHANGE, Worcester, Mass.		
1023	Bantam Evergreen No. 318 (Wholesaler's germination test 88%–1/1938) Eastern States Farmers' Exchange, Worcester	95	May
1024	Golden Cross Bantam Yellow Hybrid No. 11 G 18418 (Wholesaler's germination test 95%–12/1937) Eastern States Farmers' Exchange, Worcester	97	May
1025	Golden Bantam Yellow No. 9418 (Wholesaler's germination test 98%–1/1938) Eastern States Farmers' Exchange, Worcester	99	May
	FERRY-MORSE SEED CO., Detroit, Mich.		
1325	Whipple's Yellow Carlisle Hardware Co., West Springfield	92	May
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
1062	Golden Bantam Waite's Hardware Co., Worcester	82	April
1064	Whipple's Early Yellow Waite's Hardware Co., Worcester	96	April
1180	Early Golden Sunshine Ashland Hardware Co., Ashland	96	May
1181	Whipple's Early Sweet Yellow Ashland Hardware Co., Ashland	96	May
1207	Stowell's Evergreen H. S. Chadbourne, Milford	86	April
1231	Golden Giant Leominster Hardware Co., Leominster	84	May
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
1237	Early Pearl Gavin Hardware Co., Leominster	97	May
1239	Potter's Excelsior Gavin Hardware Co., Leominster	87	May
1466	Golden Giant Richardson Hardware Co., Waltham	96	May
1471	Black Mexican Mendelsohn's Hardware Co., Waltham	90	May
1472	Mayflower Mendelsohn's Hardware Co., Waltham	94	May
1651	Golden Evergreen (Wholesaler's germination test 90%–1/1938) Farm Service Co., North Abington	74	May

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1938 Month of Test
	CORN — Concluded		
	D. LANDRETH SEED CO., Bristol, Pa.		
1156	Golden Bantam	96	May
	P. A. Richard Hardware Co., Spencer		
	LEONARD SEED CO., Chicago, Ill.		
1560	Hybrid Golden Cross	99	June
	St. George Hardware Co., Framingham		
1565	Golden Bantam	96	May
	St. George Hardware Co., Framingham		
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
1208	Stowell's Evergreen	47	May
	H. S. Chadbourne, Milford		
1294	Bantam Evergreen	95	May
	I. G. Durnell, Ayer		
1295	Golden Bantam	90	May
	I. G. Durnell, Ayer		
	F. H. WOODRUFF & SONS, Milford, Conn.		
1455	Golden Giant	98	May
	(Wholesaler's germination test 96%–10/1937)		
	Marlboro Hardware Co., Marlboro		
1456	Golden Sunshine	95	May
	(Wholesaler's germination test 98%–1/1938)		
	Marlboro Hardware Co., Marlboro		
1530	Golden Bantam	96	June
	Robinson's Hardware Co., Hudson		
1531	Golden Sensation	91	June
	Robinson's Hardware Co., Hudson		
	S. D. WOODRUFF & SONS, Orange, Conn.		
1224	Bantam Evergreen, No. 1559	94	May
	(Wholesaler's germination test 95%–6/1938)		
	Farm Service Store, West Berlin		
1271	Golden Bantam	94	May
	Central Hardware Co., Fitchburg		
	CRESS		
	JOSEPH BRECK & SONS CORP., Boston, Mass.		
1506	Curled or Peppergrass	97	June
	Joseph Breck & Sons Corp., Boston		
	THORNTON & CROUCH, Lawrence, Mass.		
1837	Curled	99	June
	Thornton & Crouch, Lawrence		
	CUCUMBER		
	BARTLETT & DOW CO., Lowell, Mass.		
1854	Boston Pickling	86	June
	Bartlett & Dow Co., Lowell		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
1499	Japanese Climbing No. 6361 C	57	June
	Joseph Breck & Sons, Corp., Boston		
1500	Straight 8 No. 8035 F	97	June
	Joseph Breck & Sons, Corp., Boston		
1501	Early Russian No. 8348 W	95	June
	Joseph Breck & Sons, Corp., Boston		
1502	Klondike No. 5437 F	91	June
	Joseph Breck & Sons, Corp., Boston		
1503	Breck's Forcing White Spine No. 8000 L	98	June
	Joseph Breck & Sons, Corp., Boston		

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1938 Month of Test
	CUCUMBER — Continued		
	COMSTOCK-FERRE & CO., Wethersfield, Conn.		
1097	Improved White Spine Arlington W. M. Lee Co., Clinton	90	April
1098	Davis Perfect W. M. Lee Co., Clinton	83	April
1099	Improved Long Green W. M. Lee Co., Clinton	92	April
1696	Improved Long Green Lockhart Hardware Co., Natick	90	June
1697	Early White Spine Lockhart Hardware Co., Natick	98	June
	THOMAS W. EMERSON CO., Boston, Mass.		
1212	Green Cluster Uxbridge Hardware Co., Uxbridge	76	June
1556	Long Green Goodman Hardware Co., Framingham	96	June
1648	Arlington White Spine Farm Service Co., North Abington	77	June
	EASTERN STATES FARMERS' EXCHANGE, West Springfield, Mass.		
1333	Clark's Special No. 12 C 1317 (Wholesaler's germination test 87%–12/1937) Eastern States Farmers' Exchange, West Springfield	87	June
1334	Straight 8 Slicing, Early Dark Green (No. 12 B 4617) (Wholesaler's germination test 97%–12/1937) Eastern States Farmers' Exchange, West Springfield	91	June
	FERRY-MORSE SEED CO., Detroit, Mich.		
1323	Long Green Carlisle Hardware Co., West Springfield	95	June
1324	Early White Spine Carlisle Hardware Co., West Springfield	99	June
	FITCHBURG HARDWARE CO., Fitchburg, Mass.		
1257	Boston Pickling Fitchburg Hardware Co., Fitchburg	97	June
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
1462	Improved White Spine Richardson Hardware Co., Waltham	97	June
1463	Japanese Climbing Richardson Hardware Co., Waltham	78	June
1573	Long Green Watertown Paint & Hardware Co., Watertown	87	June
	HOVEY & CO., Boston, Mass.		
1632	Davis Perfect Hovey & Co., Boston	91	June
	LEONARD SEED CO., Chicago, Ill.		
1568	Improved Long Green St. George Hardware Co., Framingham	89	June
1569	Early Improved White Spine St. George Hardware Co., Framingham	95	June
	NORTHRUP, KING & CO., Minneapolis, Minn.		
1000	Improved Long Green Roland R. Peinze, Northboro	81	April
	PERRY SEED CO., Boston, Mass.		
1593	Arlington White Spine No. 2862 R Perry Seed Co., Boston	82	June

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1938 Month of Test
	CUCUMBER — Concluded		
	PERRY SEED CO. — Concluded		
1594	Davis Perfect No. 2891 R Perry Seed Co., Boston	95	June
1595	Improved Long Green, No. 2963 R Perry Seed Co., Boston	87	June
1596	Japanese Climbing No. 2977 R Perry Seed Co., Boston	49	June
1597	Early Fortune, No. 2929 R Perry Seed Co., Boston	93	June
1599	Boston Pickling No. 2880 R Perry Seed Co., Boston	86	June
	ROSS BROS CO., Worcester, Mass.		
1385	Improved Long Green E. I. Swan's Hardware Co., Westboro	96	June
	F. H. WOODRUFF & SONS, Milford, Conn.		
1126	Improved White Spine J. B. Sibley & Son, Ware	79	June
1127	Early Cluster J. B. Sibley & Son, Ware	88	June
1132	Boston Pickling J. B. Sibley & Son, Ware	82	June
	S. D. WOODRUFF & SONS, Orange, Conn.		
2034	White Spine Farm Service Co., Lowell	88	June
	DANDELION		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
1508	Dandelion Joseph Breck & Sons, Corp., Boston	24	May
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
1461	Improved Giant Thick Leaf (Wholesaler's germination test 50% or better–1938) Hanley's Hardware Co., Marlboro	28	May
	PERRY SEED CO., Boston, Mass.		
1665	Arlington Thick Leaf Perry Seed Co., Boston	74	May
	DILL		
	FRASER'S, Wellesley, Mass.		
1444	Long Island Mammoth (Wholesaler's germination test 70%–1/1938) Fraser's, Wellesley	83	May
	G. W. GARDINER & SONS, Fall River, Mass.		
1839	Dill G. W. Gardiner & Sons, Fall River	83	May
	S. D. WOODRUFF & SONS, Orange, Conn.		
1266	Dill Central Hardware Co., Fitchburg	22	May
1310	Dill James Morrissey, Indian Orchard	73	May
	EGG PLANT		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
1509	Black Beauty Joseph Breck & Sons, Corp., Boston	80	May

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1938 Month of Test
	EGG PLANT — Concluded		
	EASTERN STATES FARMERS' EXCHANGE, West Springfield, Mass.		
1339	Black Beauty, No. 15 A 12017	94	May
	(Wholesaler's germination test 94%–12/1937)		
	Eastern States Farmers' Exchange, West Springfield		
	G. W. GARDINER & SONS, Fall River, Mass.		
1836	Black Beauty	75	May
	G. W. Gardiner & Sons, Fall River		
	J. J. H. GREGORY & SONS, Marblehead, Mass.		
1911	Black Beauty No. 877	72	May
	J. J. H. Gregory & Sons, Marblehead		
	PERRY SEED CO., Boston, Mass.		
1664	Black Beauty, No. 3098–90	87	May
	Perry Seed Co., Boston		
	ENDIVE		
	THOMAS W. EMERSON CO., Boston, Mass.		
1191	Broadleaf	74	April
	Casey's Hardware Co., Milford		
1192	Endive	95	May
	F. A. Gould, Milford		
1654	Green Curled	86	May
	Lawson's Paint & Seed Co., Campello		
	NORTHRUP, KING & CO., Minneapolis, Minn.		
1296	Broad Leaved Batavian Escarolle	93	May
	Aubuchon Hardware Co., Ayer		
	PAGE SEED CO., Greene, N. Y.		
1659	Endive Broad Leaved Escarolle	85	May
	Stone's Hardware Co., Brockton		
	F. H. WOODRUFF & SONS, Milford, Conn.		
1452	Curly	85	May
	Marlboro Hardware Co., Marlboro		
	KALE		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
1507	Curled Scotch Dwarf Green	88	June
	Joseph Breck & Sons, Corp., Boston		
	EASTERN STATES FARMERS' EXCHANGE, Worcester, Mass.		
1026	Curled Blue Scotch Early Dwarf No. 17 A 11014	86	June
	(Wholesaler's germination test 80%–12/1937)		
	Eastern States Farmers' Exchange, Worcester		
	KOHL RABI		
	EASTERN STATES FARMERS' EXCHANGE, West Springfield, Mass.		
1340	White Vienna No. 18 A 1617	87	June
	(Wholesaler's germination test 89%—12/1937)		
	Eastern States Farmers' Exchange, West Springfield		
	J. J. H. GREGORY & SON, Marblehead, Mass.		
1940	Large Purple Vienna No. 891	38	June
	J. J. H. Gregory & Son, Marblehead		
	LEEK		
	EASTERN STATES FARMERS' EXCHANGE, Worcester, Mass.		
1027	Large American Flag	87	May
	Eastern States Farmers' Exchange, Worcester		
	PERRY SEED CO., Boston, Mass.		
1661	Monstrous Carentan	79	May
	Perry Seed Co., Boston		

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1938 Month of Test
	LETTUCE		
	BARTLETT & DOW CO., Lowell, Mass.		
1851	Iceberg ..... Bartlett & Dow Co., Lowell	84	June
	BORGES SEED CO., Fall River, Mass.		
1827	Iceberg ..... Borges Seed Co., Fall River	75	June
	W. ATLEE BURPEE CO., Philadelphia, Pa.		
2010	Improved N. Y. ..... Leavitt's Sport Shop, Haverhill	88	June
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
1982	Black Seeded Tennisball ..... H. V. Lawrence, Falmouth	97	June
	W. F. COBB CO., Franklin, Mass.		
1811	Iceberg ..... W. F. Cobb Co., Franklin	91	June
1815	Simpson ..... W. F. Cobb Co., Franklin	74	June
	THOMAS W. EMERSON CO., Boston, Mass.		
1195	Big Boston ..... F. A. Gould, Milford	94	April
1213	Iceberg ..... Uxbridge Hardware Co., Uxbridge	95	June
1553	Early Curled Simpson ..... Goodman Hardware Co., Framingham	61	June
1554	Iceberg ..... Goodman Hardware Co., Framingham	85	June
1605	Boston Market ..... Thomas W. Emerson Co., Boston	96	June
1609	May King ..... Thomas W. Emerson Co., Boston	25	June
1613	White Boston ..... Thomas W. Emerson Co., Boston	96	June
2020	Boston Market ..... Massey's Hardware Co., Newburyport	91	June
	EASTERN STATES FARMERS' EXCHANGE, West Springfield, Mass.		
2029	N. Y. No. 12 20 B 1717 ..... (Wholesaler's germination test 94%-12 1937) Essex County Cooperative Exchange, Topsfield	96	June
	FRASER'S, Wellesley, Mass.		
1439	Iceberg Imp. Strain ..... (Wholesaler's germination test 95%-1 1938) Fraser's, Wellesley	98	June
	G. W. GARDINER & SONS, Fall River, Mass.		
1830	New York No. 12 ..... G. W. Gardiner & Sons, Fall River	81	June
	J. J. H. GREGORY & SON, Marblehead, Mass.		
1931	Big Boston White Seed ..... J. J. H. Gregory & Son, Marblehead	87	June
1939	Tennisball Black Seed ..... J. J. H. Gregory & Son, Marblehead	96	June
1942	N. Y. No. 12 ..... J. J. H. Gregory & Son, Marblehead	87	June
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
1932	Iceberg ..... F. H. Turner & Co., Great Barrington	90	June

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1938 Month of Test
	LETTUCE — Continued		
	BUDD D. HAWKINS, Reading, Vt.		
1515	Big Boston Lamson Hardware Co., Marlboro	77	June
1516	Black Seeded Simpson Lamson Hardware Co., Marlboro	96	June
1517	Early Prize Head Lamson Hardware Co., Marlboro	97	June
1518	Improved Hanson Lamson Hardware Co., Marlboro	96	June
1818	Early Prize Head H. A. Spear & Son, Walpole	97	June
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.		
1899	N. Y. No. 515 Joseph Harris Co., Inc., Warehouse, Cambridge	99	June
	HOVEY & CO., Boston, Mass.		
1633	May King Hovey & Co., Boston	95	June
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
1149	Early Curled Silesian Italian American Grocery Co., Monson	65	April
	D. LANDRETH SEED CO., Bristol, Pa.		
1161	Prize-Head or Satisfaction P. A. Richard Hardware Co., Spencer	95	April
	LEONARD SEED CO., Chicago, Ill.		
1820	Romaine Cos. Kingman Hardware Co., Franklin	95	June
2002	Tennisball White Seed (Wholesaler's Germination Test, 85%) F. B. Keene, Amesbury	0	June
2003	Iceberg (Wholesaler's Germination Test, 85%) F. B. Keene, Amesbury	93	June
	WM. G. PEARSE & SON, Fall River, Mass.		
1843	New York No. 12 Wm. G. Pearse & Son, Fall River	82	June
	CHARLES R. PEDRICK & SON, Pedrickstown, N. J.		
1822	Boston Market The Continental Nurseries, Franklin	14	June
	PERRY SEED CO., Boston, Mass.		
1598	Black Seeded Tennisball No. 3585-6N Perry Seed Co., Boston	76	June
1660	Big Boston B. S. No. 3365 M Perry Seed Co., Boston	85	June
	ROSS BROS CO., Worcester, Mass.		
2019	Light Iceberg Hyannis Hardware Co., Hyannis	56	June
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
1090	Early Curled Simpson Hamilton Hardware Co., Clinton	64	April
1915	Grand Rapids (Wholesaler's Germination Test, 92%) Frank Howard, Inc., Pittsfield	97	June
	STERLING SEED CO., Minneapolis, Minn.		
1477	Iceberg, N. Y. Special–Los Angeles Market (Packed for 1938) Grant's Store, Waltham	73	June

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1938 Month of Test
	LETTUCE — Concluded		
	THORNTON & CROUCH, Lawrence, Mass.		
1746	Big Boston Thornton & Crouch, Lawrence	90	June
	JOHN VARICK SEED CO., Manchester, N. H.		
1996	Simpson L. L. Peavey Co., Inc., Newburyport	93	June
1997	Iceberg L. L. Peavey Co., Inc., Newburyport	89	June
	F. H. WOODRUFF & SONS, Milford, Conn.		
1896	N. Y. No. 12 Middlesex County Farm Bureau, Waltham	95	June
1924	Iceberg Pierson Hardware Co., Pittsfield	95	June
1925	Boston Head Pierson Hardware Co., Pittsfield	95	June
1930	Hanson Improved Pierson Hardware Co., Pittsfield	0	June
2007	Salamander Davis Hardware Co., Merrimac	29	June
2011	N. Y. No. 12 Haverhill Hardware & Supply Co., Haverhill	97	June
	S. D. WOODRUFF & SONS, Orange, Conn.		
1265	Black Seeded Simpson Central Hardware Co., Fitchburg	49	June
	MUSKMELON		
	COBURN SEED & SUPPLY CO., Chelmsford, Mass.		
1849	Bender's Surprise Coburn Seed & Supply Co., Chelmsford	84	June
	THOMAS W. EMERSON CO., Boston, Mass.		
1210	Rocky Ford Uxbridge Hardware Co., Uxbridge	88	June
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
1240	Honey Dew Gavin Hardware Co., Leominster	90	June
	PERRY SEED CO., Boston, Mass.		
1679	Montreal Market Improved 4136 N Perry Seed Co., Boston	90	June
1680	Lake Champlain No. 4146 A Perry Seed Co., Boston	78	June
	F. H. WOODRUFF & SONS, Milford, Conn.		
1346	Orange Flesh James Splann Estate, South Deerfield	44	June
	ONION		
	BARTLETT & DOW CO., Lowell, Mass.		
1853	Danvers Yellow Globe Bartlett & Dow Co., Lowell	65	May
	COMSTOCK-FERRE & CO., Wethersfield, Conn.		
1282	Yellow Globe George L. Moison Hardware Co., Groton	95	May
	THOMAS W. EMERSON CO., Boston, Mass.		
2091	Danvers Yellow Globe W. H. Dewhirst Co., Amesbury	28	June

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1938 Month of Test
	ONIONS — Concluded		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
1459	Danvers Yellow Globe (Wholesaler's Germination Test, 75%–1/1938) Hanley's Hardware Co., Marlboro	86	May
1460	Large Red Wethersfield (Wholesaler's Germination Test, 75%–1/1938) Hanley's Hardware Co., Marlboro	79	May
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.		
1898	Southport Red Globe No. 725 (Wholesaler's germination test 88%–1/1938) Joseph Harris Co., Inc., Warehouse, Cambridge	89	May
	NORTHRUP, KING & CO., Minneapolis, Minn.		
1297	White Portugal or America's Silverskin Aubuchon Hardware Co., Ayer	41	May
	PERRY SEED CO., Boston, Mass.		
1675	White Lisbon Perry Seed Co., Boston	62	May
1676	Japanese Perry Seed Co., Boston	92	May
	WM. G. PEARSE CO., Fall River, Mass.		
1844	Red Globe Wm. G. Pearse Co., Fall River	69	May
	ROSS BROS. CO., Worcester, Mass.		
1173	Danvers Yellow Globe A. S. Tucker, Warren	77	April
	THORNTON & CROUCH, Lawrence, Mass.		
1858	Prizetaker Thornton & Crouch, Lawrence	70	June
	S. D. WOODRUFF & SONS, Orange, Conn.		
1267	Large White Globe Central Hardware Co., Fitchburg	9	May
1268	Danvers Yellow Globe Central Hardware Co., Fitchburg	78	May
2013	Danvers Yellow Globe Farm Service Co., Lowell	19	June
	PARSLEY		
	EASTERN STATES FARMERS' EXCHANGE, West Springfield, Mass.		
1337	Plain Leaf Italian No. 23 C 1617 (Wholesaler's germination test, 74%–12/1937) Eastern States Farmers' Exchange, West Springfield	97	May
1338	Peerless Moss Curled No. 23 B 1618 (Wholesaler's germination test, 80%–1/1938) Eastern States Farmers' Exchange, West Springfield	85	May
	FRASER'S, Wellesley, Mass.		
1438	Moss Curled (Wholesaler's germination test, 80%–1/1938) Fraser's, Wellesley	46	May
	THOMAS J. GREY CO., Boston, Mass.		
1616	Lincoln Green–English Thomas J. Grey Co., Boston	86	May
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.		
1900	Paramount Joseph Harris Co., Inc., Warehouse, Cambridge	88	May
	NORTHRUP, KING & CO., Minneapolis, Minn.		
1298	Dark Moss Curled Aubuchon Hardware Co., Ayer	86	May

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1938 Month of Test
	PARSNIP		
	BORGES SEED CO., Fall River, Mass.		
1829	Westside	2	May
	Borges Seed Co., Fall River		
	COBURN SEED & SUPPLY CO., Chelmsford		
1846	Hollow Crown	81	May
	Coburn Seed & Supply Co., Chelmsford		
	COMSTOCK-FERRE & CO., Wethersfield, Conn.		
1184	Champion Hollow Crown	66	April
	Adams & Co., Holliston		
1281	Hollow Crown	79	May
	George L. Moison Hardware Co., Groton		
1698	Long Smooth	64	May
	Lockhart Hardware Co., Natick		
	THOMAS W. EMERSON CO., Boston, Mass.		
1209	Long Smooth	58	April
	Uxbridge Hardware Co., Uxbridge		
	G. W. GARDINER & SONS, Fall River, Mass.		
1831	Long Smooth	10	May
	G. W. Gardiner & Sons, Fall River		
	THOMAS J. GREY CO., Boston, Mass.		
1615	The Student–English Seed	98	May
	Thomas J. Grey Co., Boston		
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.		
1897	Harris Model	67	May
	(Wholesaler's germination test, 80% 1/1938)		
	Joseph Harris Co., Inc., Warehouse, Cambridge		
	BUDD D. HAWKINS, Reading, Vt.		
1074	Improved Hollow Crown	83	April
	Brockelman Bros., Inc., Worcester		
	D. LANDRETH SEED CO., Bristol, Pa.		
1050	Hollow Crown No. 38148	75	April
	Elwood Adams Co., Worcester		
	LEONARD SEED CO., Chicago, Ill.		
2004	Improved Hollow Crown	80	June
	F. B. Keene, Amesbury		
	F. H. WOODRUFF & SONS, Milford, Conn.		
1131	Hollow Crown	78	April
	J. B. Sibley & Son, Ware		
1345	Hollow Crown	87	April
	James Splann Estate, South Deerfield		
1921	Hollow Crown	78	May
	Pierson Hardware Co., Pittsfield		
	S. D. WOODRUFF & SONS, Orange, Conn.		
1219	Hollow Crown	30	April
	(Wholesaler's germination test approximately 50%–11/1937)		
	Farm Service Stores, West Berlin		
1269	Improved Hollow Crown Guernsey	34	April
	Central Hardware Co., Fitchburg		
	PEAS		
	JOSEPH BRECK & SONS CORP., Boston, Mass.		
1285	Laxtonian	95	May
	Milo H. Shattuck, Groton		
1286	Dwarf Telephone	84	May
	Milo H. Shattuck, Groton		
1287	Sutton's Excelsior	96	May
	Milo H. Shattuck, Groton		

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1938 Month of Test
	PEAS — Continued		
	JOSEPH BRECK & SONS CORP. — Concluded		
1816	Improved Telephone Franklin Hardware Plumbing & Supply Co., Franklin	97	June
	COMSTOCK-FERRE & CO., Wethersfield, Conn.		
1875	Telephone Norfolk Lumber Co., Stoughton	90	June
	EASTERN STATES FARMERS' EXCHANGE, Worcester, Mass.		
1031	Laxton's Progress, Wrinkled Eastern States Farmers' Exchange, Worcester	98	April
1032	World's Record Improved Gradus Eastern States Farmers' Exchange, Worcester	92	April
	THOMAS W. EMERSON CO., Boston, Mass.		
1059	Little Marvel Lincoln Square Paint & Hardware Co., Worcester	88	April
1060	Sutton's Excelsior Lincoln Square Paint & Hardware Co., Worcester	93	April
1217	Thomas Laxton Andrews & Taylor, Berlin	77	June
1218	Sutton's Excelsior Andrews & Taylor, Berlin	91	May
1604	Laxton's Progress Thomas W. Emerson Co., Boston	96	May
1647	Dwarf Telephone Farm Service Co., North Abington	83	May
	FERRY-MORSE SEED CO., Detroit, Mich.		
1307	Dwarf Excelsior (Nott's) Carlisle Hardware Co., Indian Orchard	93	May
	FITCHBURG HARDWARE CO., Fitchburg, Mass.		
1254	Laxtonian Fitchburg Hardware Co., Fitchburg	97	May
1255	Sutton's Excelsior Fitchburg Hardware Co., Fitchburg	87	May
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
1065	Peas (6) Waite's Hardware Co., Worcester	70	April
1066	Blue Bantam Waite's Hardware Co., Worcester	78	April
1542	Sutton's Excelsior Sawyer's Hardware Co., Framingham	94	June
1543	Improved Tall Telephone Sawyer's Hardware Co., Framingham	98	June
1817	Sutton's Excelsior H. A. Spear & Son, Walpole	81	June
	HOVEY & CO., Boston, Mass.		
1634	Blue Bantam Hovey & Co., Boston	99	May
	D. LANDRETH CO., Bristol, Pa.		
1051	Telephone (Tall) No. 38161 Elwood Adams Co., Worcester	94	April
1154	Gradus P. A. Richard Hardware Co., Spencer	87	May
1155	Telephone P. A. Richard Hardware Co., Spencer	89	May
1157	Nott's Excelsior P. A. Richard Hardware Co., Spencer	95	May

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1938 Month of Test
	PEAS — Concluded		
	LEONARD SEED CO., Chicago, Ill.		
1566	World's Record St. George Hardware Co., Framingham	92	May
	PAGE SEED CO., Greene, N. Y.		
1658	Nott's Excelsior Stone Hardware Co., Brockton	95	May
1825	Dwarf Telephone Tinkham's Store, Bridgewater	90	June
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
1084	Hundredfold Hamilton Hardware Co., Clinton	95	April
1085	Thomas Laxton Hamilton Hardware Co., Clinton	96	April
1136	Rice's Improved Dwarf Telephone R. E. Faulkner & Co., Palmer	83	May
1137	Laxtonian R. E. Faulkner & Co., Palmer	85	May
1138	Sutton's Excelsior, New Large Pod Dwarf R. E. Faulkner & Co., Palmer	90	May
1139	Gradus R. E. Faulkner & Co., Palmer	76	May
1513	Little Marvel Lamson Hardware Co., Marlboro	73	May
1514	Blue Bantam Lamson Hardware Co., Marlboro	88	May
	ROSS BROS. CO., Worcester, Mass.		
1168	Alderman Allen Wheeler, Clover Farm, West Brookfield	90	May
1169	Blue Bantam Allen Wheeler, Clover Farm, West Brookfield	97	May
	F. H. WOODRUFF & SONS, Milford, Conn.		
1532	Telephone Robinson's Hardware Co., Hudson	90	June
1533	Laxtonian Robinson's Hardware Co., Hudson	86	June
1548	Wyoming Wonder Boston Supply Co., Framingham	89	June
	S. D. WOODRUFF & SONS, Orange, Conn.		
1274	Telephone Central Hardware Co., Fitchburg	93	May
1646	Sutton's Excelsior Farm Service Co., North Abington	91	May
	UNKNOWN		
1467	Sutton's Excelsior Richardson's Hardware Co., Waltham	84	May
	PEPPER		
	JOSEPH BRECK & SONS CORP., Boston, Mass.		
2017	Large Bell H. V. Lawrence, Falmouth	62	June
	EASTERN STATES FARMERS' EXCHANGE, West Springfield, Mass.		
2027	Waltham Beauty 26 A-28417 (Wholesaler's germination test, 67%) Essex County Cooperative Association, Topsfield	76	June

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1938 Month of Test
	PEPPERS — Concluded		
	FRASER'S, Wellesley, Mass.		
1436	World Beater (Wholesaler's germination test, 75%–1/1938) Fraser's, Wellesley	93	May
1437	Colossal Improved Ruby King (Wholesaler's germination test, 90%–1/1938) Grant's Store, Waltham	90	May
	G. W. GARDINER & SONS, Fall River, Mass.		
1833	World Beater G. W. Gardiner & Sons, Fall River	91	May
	J. J. H. GREGORY & SON, Marblehead, Mass.		
1938	Large Bell J. J. H. Gregory & Son, Marblehead	89	May
	STERLING SEED CO., Minneapolis, Minn.		
1473	Red Chili (Packed for 1938) Grant's Store, Waltham	63	May
	PUMPKIN		
	COMSTOCK-FERRE & CO., Wethersfield, Conn.		
1699	Sweet or Sugar Lockhart Hardware Co., Natick	85	June
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
1235	Small Sugar Pie Leominster Hardware Co., Leominster	97	May
	THORNTON & CROUCH, Lawrence, Mass.		
1786	Sugar Thornton & Crouch, Lawrence.	85	June
	VARICK SEED CO., Manchester, N. H.		
1998	Sugar L. L. Peavey Co., Inc., Newburyport	99	June
	RADISH		
	BARTLETT & DOW CO., Lowell, Mass.		
1850	Early Scarlet Globe Bartlett & Dow Co., Lowell	90	June
	BORGES SEED CO., Fall River, Mass.		
1828	Scarlet Globe Borges Seed Co., Fall River	62	June
	COMSTOCK-FERRE & CO., Wethersfield, Conn.		
1695	Early Scarlet Globe Lockhart Hardware Co., Natick	95	June
	COBURN SEED & SUPPLY CO., Chelmsford, Mass.		
1847	Scarlet Globe Coburn Seed & Supply Co., Chelmsford	97	June
	FRASER'S, Wellesley, Mass.		
1424	White Icicle (Wholesaler's germination test, 95%–1/1938) Fraser's, Wellesley	99	June
1435	French Breakfast (Wholesaler's germination test, 95%–1/1938) Fraser's, Wellesley	95	June
	FERRY-MORSE SEED CO., Detroit, Mich.		
1319	Early Scarlet Globe, Medium Top Carlisle Hardware Co., West Springfield	96	June
	G. W. GARDINER & SONS, Fall River, Mass.		
1835	Scarlet Globe G. W. Gardiner & Sons, Fall River	89	June

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1938 Month of Test
	RADISH — Concluded		
	J. J. H. GREGORY & SON, Marblehead, Mass.		
1943	Long White Icicle	89	June
	J. J. H. Gregory & Son, Marblehead		
1951	Crimson Giant Forcing	89	June
	J. J. H. Gregory & Son, Marblehead		
	THOMAS J. GREY CO., Boston, Mass.		
1614	Saxa	92	June
	Thomas J. Grey Co., Boston		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
1457	Early White Tipped Scarlet	74	June
	(Wholesaler's germination test, 75%–1/1938)		
	Hanley's Hardware Co., Marlboro		
1458	French Breakfast	92	June
	(Wholesaler's germination test, 75%–1/1938)		
	Hanley's Hardware Co., Marlboro		
	BUDD D. HAWKINS, Reading, Vt.		
1519	Early Scarlet Turnip-White Tipped	89	June
	Lamson Hardware Co., Marlboro		
1520	Early Scarlet Turnip	91	June
	Lamson Hardware Co., Marlboro		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
1147	Round Black Spanish Winter	58	April
	Italian American Grocery Co., Monson		
	D. LANDRETH SEED CO., Bristol, Pa.		
1046	Scarlet Globe No. 37180	90	April
	Elwood Adams Co., Worcester		
	LEONARD SEED CO., Chicago, Ill.		
1570	Early Scarlet Globe	73	June
	St. George Hardware Co., Framingham		
1571	French Breakfast	88	June
	St. George Hardware Co., Framingham		
	WM. G. PEARSE & CO., Fall River, Mass.		
1812	Scarlet Globe	97	June
	Wm. G. Pearse & Co., Fall River		
	CHARLES R. PEDRICK & SON, Pedrickstown, N. J.		
1824	Early Scarlet Turnip	47	June
	Continental Nurseries, Franklin		
	PERRY SEED CO., Boston, Mass.		
1681	Scarlet Globe	89	June
	Perry Seed Co., Boston		
	ROSS BROS. CO., Worcester, Mass.		
1392	Scarlet Globe	98	June
	Fred's Hardware Store, Westboro		
	STERLING SEED CO., Minneapolis, Minn.		
1474	French Breakfast	63	June
	Grant's Store, Waltham		
	F. H. WOODRUFF & SONS, Milford, Conn.		
1133	French Breakfast	98	April
	J. B. Sibley & Son, Ware		
1450	Crimson Giant	97	June
	(Wholesaler's germination test approximately 91%–10/1937)		
	Marlboro Hardware Co., Marlboro		
1551	Early Scarlet Globe	96	June
	Boston Supply Co., Framingham		
1894	Early Scarlet Globe	97	June
	Middlesex County Farm Bureau, Waltham		
	S. D. WOODRUFF & SONS, Orange, Conn.		
1264	French Breakfast	62	June
	Central Hardware Co., Fitchburg		

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1938 Month of Test
	ROSEMARY		
1677	PERRY SEED CO., Boston, Mass. Rosemary Perry Seed Co., Boston	30	June
	RUTA BAGA		
1855	BARTLETT & DOW CO., Lowell, Mass. Improved American Purple Top Bartlett & Dow Co., Lowell	80	June
2009	W. ATLEE BURPEE CO., Philadelphia, Pa. Purple Top Yellow Leavitt's Sport Shop, Haverhill	76	June
1701	COMSTOCK-FERRE & CO., Wethersfield, Conn. American Purple Top Lockhart Hardware Co., Natick	81	June
1995	THOMAS W. EMERSON CO., Boston, Mass. American Purple Top Farm Service Store, Newburyport	99	June
1524	BUDD D. HAWKINS, Reading, Vt. New White Sweet German Lamson Hardware Co., Marlboro	54	June
1047	D. LANDRETH SEED CO., Bristol, Pa. Ruta Baga No. 37214 Elwood Adams Co., Worcester	78	April
1821	LEONARD SEED CO., Chicago, Ill. Improved American Purple Top Kingman Hardware Co., Franklin	84	June
1384	ROSS BROS. CO., Worcester, Mass. Shamrock E. J. Swan Co., Westboro	89	June
2015	S. D. WOODRUFF & SONS, Orange, Conn. Long Island Improved Farm Service Co., Lowell	91	June
	SAGE		
2024	JOSEPH BRECK & SONS CORP., Boston, Mass. Sage H. V. Lawrence, Falmouth	47	June
1814	W. F. COBB CO., Franklin, Mass. Garden W. F. Cobb Co., Franklin	91	June
1678	PERRY SEED CO., Boston, Mass. Sage Perry Seed Co., Boston	83	June
	SALSIFY		
1328	EASTERN STATES FARMERS' EXCHANGE, West Springfield, Mass. Mammoth Sandwich Island (Wholesaler's germination test, 86%–1/1938) Eastern States Farmers' Exchange, West Springfield	98	June
	SPINACH		
1852	BARTLETT & DOW CO., Lowell, Mass. King of Denmark Bartlett & Dow Co., Lowell	73	June
1826	BORGES SEED CO., INC., Fall River, Mass. Long Standing Savoy Borges Seed Co., Inc., Fall River	88	June

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1938 Month of Test
	SPINACH — Concluded		
	COMSTOCK-FERRE & CO., Wethersfield, Conn.		
1182	Thick Leaf Round	85	April
	Adams & Co., Holliston		
	THOMAS W. EMERSON CO., Boston, Mass.		
1196	Bloomsdale, Savoy Leaved	47	June
	F. A. Gould, Milford		
1558	Round Thick Leaf	57	June
	Goodman Hardware Co., Framingham		
	EASTERN STATES FARMERS' EXCHANGE, Worcester, Mass.		
1029	Summer Savoy–No. 5618	84	June
	(Wholesaler's germination test, 88%–12/1937)		
	Eastern States Farmers' Exchange, Worcester		
	FERRY-MORSE SEED CO., Detroit, Mich.		
1321	Giant Thick Leaved	71	June
	Carlisle Hardware Co., West Springfield		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
1574	Bloomsdale or Savoy Leaved	80	June
	Watertown Paint & Hardware Co., Watertown		
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.		
1907	Special Summer Savoy	84	June
	Joseph Harris Co., Inc., Warehouse, Cambridge		
	D. LANDRETH SEED CO., Bristol, Pa.		
1160	Bloomsdale Long Standing	71	June
	(Wholesaler's germination test, 87%–2/1938)		
	P. A. Richard Hardware Co., Spencer		
	CHARLES R. PEDRICK & SON, Pedrickstown, N. J.		
1823	Long Standing	2	June
	Continental Nurseries, Franklin		
	PERRY SEED CO., Boston, Mass.		
1666	Long Standing Savoy No. 61862	76	June
	Perry Seed Co., Boston		
1667	Round Thick Leaf	49	June
	Perry Seed Co., Boston		
1668	King of Denmark	84	June
	Perry Seed Co., Boston		
	F. H. WOODRUFF & SONS, Milford, Conn.		
1886	Bloomsdale Long Standing Savoy	74	June
	Middlesex County Farm Bureau, Waltham		
	S. D. WOODRUFF & SONS, Orange, Conn.		
1650	Bloomsdale Savoy	59	June
	Farm Service Co., North Abington		
	SQUASH		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
1504	Golden Summer Crookneck	97	May
	Joseph Breck & Sons, Corp., Boston		
1505	Giant Summer Crookneck	98	May
	Joseph Breck & Sons, Corp., Boston		
	COMSTOCK-FERRE & CO., Wethersfield, Conn.		
1700	Boston Marrow (2)	67	June
	Lockhart Hardware Co., Natick		
	THOMAS W. EMERSON CO., Boston, Mass.		
1076	Early Summer Crooks, 1937 Northern Grown	92	April
	Wallace Grain Co., Clinton		
1693	Delicious	92	June
	Fiske Hardware, Inc., Natick		

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1938 Month of Test
	SQUASH — Concluded		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
1464	Blue Hubbard	85	May
	Richardson Hardware Co., Waltham		
1465	Straightneck	95	May
	Richardson Hardware Co., Waltham		
	BUDD D. HAWKINS, Reading, Vt.		
1070	Gregory's Improved Hubbard	83	April
	Brockelman Bros., Inc., Worcester		
	D. LANDRETH SEED CO., Bristol, Pa.		
1045	Blue Hubbard No. 38195	80	April
	Elwood Adams Co., Worcester		
	ROSS BROS. CO., Worcester, Mass.		
1174	Des Moines	87	April
	A. S. Tucker, Warren		
1387	Early Summer Crookneck	99	May
	Swan's Hardware Co., Westboro		
	S. D. WOODRUFF & SONS, Orange, Conn.		
1308	Hubbard	94	April
	James Morrissey, Indian Orchard		
1309	Symmes Blue Hubbard	84	April
	James Morrissey, Indian Orchard		
	UNKNOWN		
1692	Golden Hubbard	79	June
	Fiske Hardware Co., Inc., Natick		
	SWISS CHARD		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
1578	Lucullus	82	June
	C. H. Campbell Co., Inc., Newton Corners		
2023	Lucullus	97	June
	H. V. Lawrence, Falmouth		
	W. ATLEE BURPEE CO., Philadelphia, Pa.		
2008	Fordhook Giant	88	June
	Leavitt Sport Shop, Haverhill		
	COMSTOCK-FERRE & CO., Wethersfield, Conn.		
1277	Giant Lucullus	85	June
	George L. Moison Hardware Co., Groton		
	EASTERN STATES FARMERS' EXCHANGE, West Springfield, Mass.		
2030	Lucullus No. 718	97	June
	Essex County Cooperative Association, Topsfield		
	THOMAS W. EMERSON CO., Boston, Mass.		
1079	Northern Grown	94	June
	Wallace Grain Co., Clinton		
2018	Swiss Chard	87	June
	Charles T. Eastman, Falmouth		
2021	Swiss Chard	92	June
	Massey's Hardware Co., Newburyport		
	G. W. GARDINER & SONS, Fall River, Mass.		
1932	Lucullus	91	June
	G. W. Gardiner & Sons, Fall River		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
1933	Dark Green	64	June
	F. H. Turner, Great Barrington		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
1148	Sea Kale Beet	59	June
	Italian American Grocery Co., Monson		

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1938 Month of Test
	SWISS CHARD — Concluded		
	LEONARD SEED CO., Chicago, Ill.		
2005	Lucullus (Wholesaler's germination test 80%) F. B. Keene, Amesbury	84	June
	F. H. WOODRUFF & SONS, Milford, Conn.		
1895	Broad Rib Green Middlesex County Farm Bureau, Waltham	78	June
	S. D. WOODRUFF & SONS, Orange, Conn.		
1222	Lucullus No. 1615 (Wholesaler's germination test, 1938) Farm Service Stores, West Berlin	92	June
	TOMATO		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
1493	Marglobe No. 8092 F Joseph Breck & Sons, Corp., Boston	87	June
1494	John Baer, No. 71527 Joseph Breck & Sons, Corp., Boston	87	June
1495	Dwarf Champion No. 7306 F Joseph Breck & Sons, Corp., Boston	95	June
1496	Breck's Belmont No. 5028 D Joseph Breck & Sons, Corp., Boston	98	June
2022	Golden Queen H. V. Lawrence, Falmouth	80	June
	W. F. COBB CO., Franklin, Mass.		
1813	Penn State W. F. Cobb Co., Franklin	91	June
	COBURN SEED & SUPPLY CO., Chelmsford, Mass.		
1848	Bonny Best Coburn Seed & Supply Co., Chelmsford	100	June
	THOMAS W. EMERSON CO., Boston, Mass.		
1649	Bonny Best Farm Service Co., No. Abington	88	June
	EASTERN STATES FARMERS' EXCHANGE, Worcester, Mass.		
1030	Bonny Best, Early Scarlet Semi-Globe No. 8418 (Wholesaler's germination test 91%—1/1938) Eastern States Farmers' Exchange, Worcester	95	April
	EASTERN STATES FARMERS' EXCHANGE, West Springfield, Mass.		
1341	Marglobe No. 34 C-17115 (Wholesaler's germination test 86%—12/1937) Eastern States Farmers' Exchange, West Springfield	86	June
1342	Penn State Earliana No. 34 A 12016 (Wholesaler's germination test 88%—12/1937) Eastern States Farmers' Exchange, West Springfield	95	June
1343	Pritchard Scarlet Topper No. 34 B 1325 (Wholesaler's germination test 83%—12/1937) Eastern States Farmers' Exchange, West Springfield	89	June
1344	John Baer No. 34 B 2325 (Wholesaler's germination test 85%—12/1937) Eastern States Farmers' Exchange, West Springfield	92	June
2028	Stone No. 7418 (Wholesaler's germination test 90%—1/1938) Essex County Cooperative Association, Topsfield	87	June
	HOVEY & CO., Boston, Mass.		
1631	Carter's Surprise Hovey & Co., Boston	77	June

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1938 Month of Test
	TOMATO — Concluded		
	PERRY SEED CO., Boston, Mass.		
1670	Clark's Early Jewel Perry Seed Co., Boston	69	June
1672	Comet Perry Seed Co., Boston	95	June
1673	Earliana Perry Seed Co., Boston	94	June
1674	Rutgers Perry Seed Co., Boston	96	June
	THORNTON & CROUCH, Lawrence, Mass.		
1986	Bonny Best Thornton & Crouch, Lawrence	94	June
	F. H. WOODRUFF & SONS, Milford, Conn.		
1347	Clark's Early Jewell James Splann Estate, South Deerfield	95	June
2006	Red Plum Davis Hardware Co., Merrimac	77	June
2012	Dwarf Stone Haverhill Hardware & Supply Co., Haverhill	95	June
	S. D. WOODRUFF & SONS, Orange, Conn.		
1311	John Baer James Morrissey, Indian Orchard	88	June
	TURNIP		
	COMSTOCK-FERRE & CO., Wethersfield, Conn.		
1095	White Egg W. M. Lee Co., Clinton	80	May
	THOMAS W. EMERSON CO., Boston, Mass.		
1216	Purple Top Strap Leaved Uxbridge Hardware Co., Uxbridge	90	May
1655	Purple Top Strap Leaf Lawson's Paint & Seed Co., Campello	72	May
	FERRY-MORSE SEED CO., Detroit, Mich.		
1834	White Egg Manual B. Benevideo & Son, Fall River	96	May
	BUDD D. HAWKINS, Reading, Vt.		
1071	New White Egg Brockelman Bros. Inc., Worcester	50	May
	D. LANDRETH SEED CO., Bristol, Pa.		
1048	Purple Top No. 38212 Elwood Adams Co., Worcester	90	April
	WM. G. PEARSE & CO., Fall River, Mass.		
1841	White Egg Wm. G. Pearse & Co., Fall River	97	May
	ROSS BROS. CO., Worcester, Mass.		
1172	Yellow Globe A. S. Tucker, Warren	28	June
1389	Purple Top Strap Leaf Fred's Hardware Co., Westboro	83	June
	F. H. WOODRUFF & SONS, Milford, Conn.		
1451	Purple Top White Globe Marlboro Hardware Co., Marlboro	96	June

1938 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	% Germination Found	1938 Month of Test
	TURNIP — Concluded		
	S. D. WOODRUFF & SONS, Orange, Conn.		
1223	Purple Top White Globe No. 1521 ..... (Wholesaler's germination test Approx. 97%–10/1937) Farm Service Store, West Berlin	95	April
2014	White Egg ..... Farm Service Co., Lowell	86	June
	WATERMELON		
	W. F. COBB CO., Franklin, Mass.		
1810	Cole's Early ..... W. F. Cobb Co., Franklin	84	June

Type and Performance Studies with Seed Oats

Conducted in Cooperation with the Department of Agronomy
William G. Colby, Research Professor

Very few lots of seed oats offered for sale in Massachusetts are of named varieties or were grown primarily for seed purposes. Most of the better seedsmen offer the named varieties grown for seed. Farmers, however, are accustomed to purchasing ordinary commercial feeding oats from grain dealers and using these for seed; and this has led the dealers to adopt the practice of selecting a shipment of commercial oats which appears to be of good quality, screening out the light oats and weed seeds, and if the grain gives a good viability test offering the oats for sale as seed at a slightly advanced price over the commercial offering, but for less money than seedmen's named varieties. Sometimes the oats which are offered for sale as seed have not even been tested and carry none of the information required by law.

In the spring of 1938 thirteen samples of oats taken by State inspectors and ten samples sent to the Seed Laboratory by dealers, or a total of twenty-three samples from different seed sources, were planted in small plots and grown to maturity. The purpose of this preliminary study was to determine the range of variation in type and performance between some of the unnamed "selected" oats which are being offered for sale. With the exception of three cases in which the variety was named (and one of these incorrectly), these samples represented commercial lots which were sold as "selected" seed oats, oats, Fancy seed oats, Ohio oats, etc.

Observations were made on uniformity of stand and heading and maturity dates, and measurements were taken of height and total yield of dry matter. The plots were all uniform in stand but showed considerable variation in other characteristics studied. Nineteen of the samples can be characterized as representing an early, short-strawed oat type which reaches maturity in 85 days. The four remaining samples fell into a second group representing a late, long- but stiff-strawed oat type which reaches maturity in 95 days. Within each group there is a wide variation in total yields of dry matter, but since only a single plot of each sample was planted, only the larger individual differences are significant.

It is evident from this study that seed oats, as offered for sale, are at times misnamed and that "selected" oats vary considerably in type and performance. The importance of these results, however, depends upon the use to which the oats are to be put. For the farmer who is growing oats for grain or hay, they are significant because it is important for him to know whether his oats are early or late maturing, whether the straw is resistant to lodging, and whether the variety has the capacity to produce good yields of grain and straw. When he plants "selected" seed oats, he is unable to predict their performance in any of these respects. When he plants good seed of adapted varieties, he knows in advance what to expect in the way of performance. On the other hand, for the farmer who wishes to seed oats as a short-period cover crop or as a nurse crop for new seedings, it makes little difference what kind of seed he uses, provided the germination is reasonably good. In this case good "selected" seed oats should be entirely satisfactory.

Results of field tests are shown in the following table. Lot numbers with F represent official samples taken by State seed inspectors. A complete analysis of these samples is shown under the Field Crop Seeds elsewhere in this bulletin. Lot numbers with no letter represent oats sent to the laboratory for test by dealers and consequently are private samples, not reported elsewhere in this publication.

Lab. No.	Sales Name	Number of Days to Ripening	Height (Inches)	Yield of Total Dry Matter Per Plot (Pounds)
1140 F	Seed Oats	85	46	1.37
1163 F	Seed Oats	85	46	1.42
1176 F	Fancy Seed Oats	85	46	1.32
1177 F	Oats	85	47	1.50
1190 F	Oats	85	46	1.30
1220 F	Oats "Ohios"	85	46	1.37
1276 F	Seed Oats	85	50	1.54
1312 F	Seed Oats—Swedish Type	85	45	1.20
1318 F	Seed Oats	85	45	1.22
4511	Oats	85	42	1.00
4555	Quaker Oats	85	45	1.28
4646	Poultry Oats—Ohio	85	46	1.32
4955	Oats	85	46	1.32
4959	Oats	85	49	1.50
1356 F	Community Brand Seed Oats	85	47	1.40
1357 F	Selected Seed Oats	85	48	1.46
1373 F	Swedish Selected	85	46	1.38
4970	Oats	85	44	1.23
4974	Oats	85	44	1.20
1275 F	Seed Oats	95	54	1.60
4739	Seed Oats	95	54	1.26
4763	Swedish Selected	95	54	1.30
4875	Swedish Selected	95	54	1.24

Type and Variety Studies of Vegetables

Conducted in Conjunction with the Department of Vegetable Gardening, Professor Grant B. Snyder

Many home gardeners purchase their vegetable seeds either in packets or bulk lots from the neighborhood store. The quality of such seed is therefore of definite importance to a large number of people.

In order to check on the performance of seed purchased from these sources 253 samples of seed were tested in the field and observations recorded on germination and trueness-to-type for a total of 120 samples, the other 133 having been entirely washed out by heavy rains or damaged to such an extent as to render judgment of performance unreliable.

The kinds of seed tested this year by the Department of Vegetable Gardening were beets, peas, beans, radish, carrots, swiss chard, parsnips, lettuce, endive, onions, spinach and salsify. In general the germination in the field and the performance of the individual lots were satisfactory. A few lots showed poor germination and a small percentage were variable in type.

In the following report no record is shown for germination since field records corresponded very closely with the Seed Laboratory tests, which are recorded elsewhere in this publication. In performance the percentages listed mean the actual number of plants that were within the type range and developed for the variety in question a reasonably satisfactory plant.

Lab. No.	Variety and Source	True to Type Per Cent
	BEANS	
	COMSTOCK-FERRE & CO., Wethersfield, Conn.	
1120	Burpee's Stringless A. E. Wardell, New Bedford	100
1121	Kentucky Wonder Greenpod A. E. Wardell, New Bedford	100
1376	Kentucky Wonder Wax A. E. Wardell, New Bedford	100
1377	Bountiful A. E. Wardell, New Bedford	100
1378	Pencil Pod Black Wax A. E. Wardell, New Bedford	100
1379	Burpee's Stringless Greenpod A. E. Wardell, New Bedford	100
1380	Golden Wax A. E. Wardell, New Bedford	100
	EASTERN STATES FARMERS' EXCHANGE, West Springfield, Mass.	
1020	French Horticultural (Lot No. 15218) Eastern States Farmers' Exchange, West Springfield	100
1021	Pencil Pod Wax (Lot No. 2 F 32 217) Eastern States Farmers' Exchange, West Springfield	100
1022	Stringless Greenpod (Lot No. 2 C 3317) Eastern States Farmers' Exchange, West Springfield	100
	THOMAS W. EMERSON CO., Boston, Mass.	
1061	Burpee's Stringless Greenpod Lincoln Paint & Hardware Co., Worcester	100
1078	Dwarf Horticultural Wallace Grain Co., Clinton	100
1080	Kentucky Wonder Greenpod Wallace Grain Co., Clinton	100
	CHARLES C. HART SEED CO., Wethersfield, Conn.	
1063	Pencil Pod Black Wax Waite's Hardware Co., Worcester	100
1111	Golden Wax Saunder's Hardware Co., Leominster	100
1232	Pole Horticultural Leominster Hardware Co., Leominster	Nonproductive
1233	Round Pod Kidney Wax Leominster Hardware Co., Leominster	100
	D. LANDRETH SEED CO., Bristol, Pa.	
1049	Brittle Wax Elwood Adams Co., Worcester	100
1158	Top Notch Golden Wax P. A. Richards Co., Spencer	100
	JEROME B. RICE SEED CO., Cambridge, N. Y.	
1100	Early Red Valentine George Doane, Middleboro	100
1101	Bountiful George Doane, Middleboro	100
1102	Davis White Kidney Wax George Doane, Middleboro	100
1103	Golden Wax Dwarf George Doane, Middleboro	100
1104	Black Wax Dwarf George Doane, Middleboro	100
1134	Golden Wax Dwarf R. E. Faulkner Co., Palmer	100

Lab. No.	Variety and Source	True to Type Per Cent
	BEANS — Concluded	
	JEROME B. RICE SEED CO. — Concluded	
1135	Surecrop Wax R. E. Faulkner Co., Palmer	100
1200	Pencil Pod Black Wax H. S. Chadbourne Co., Milford	100
1204	Black Wax Dwarf Pod H. S. Chadbourne Co., Milford	100
1205	Improved Golden Wax H. S. Chadbourne Co., Milford	100
	ROSS BROS. CO., Worcester, Mass.	
1166	Pencil Pod Black Wax Allen Wheeler, Clover Farm, West Brookfield	100
1167	Dwarf Horticultural Allen Wheeler, Clover Farm, West Brookfield	100
	F. H. WOODRUFF & SONS, Milford, Conn.	
1526	Golden Wax Robinson Hardware Co., Hudson	100
1528	Goddard Robinson Hardware Co., Hudson	100
	S. D. WOODRUFF & SONS, Orange, Conn.	
1534	Dwarf Yellow Eye Aubuchon Hardware Co., Hudson	100
1535	Improved Golden Wax Aubuchon Hardware Co., Hudson	100
	BEETS	
	JOSEPH BRECK & SONS, CORP., Boston, Mass.	
1420	Crosby's Egyptian (Not Crosby's Egyptian, Looks Like Crimson Globe) Pebeco Hardware Co., Wellesley	
	COMSTOCK-FERRE & CO., Wethersfield, Conn.	
1183	Detroit Dark Red Adams & Co., Holliston	88
1278	Crosby's Egyptian George Moison Hardware Co., Groton	84
	EASTERN STATES FARMERS' EXCHANGE, Worcester, Mass.	
1028	Detroit Dark Red (Late Market Globe) Eastern States Farmers' Exchange, Worcester	84
1335	Detroit Dark Red (Late Market Globe) (Lot No. 3C 2217) Eastern States Farmers' Exchange, Worcester	88
	EASTERN STATES FARMERS' EXCHANGE, West Springfield, Mass.	
1336	Crosby's Egyptian (Early Wonder) (Lot No. 3 B 24117) Eastern States Farmers' Exchange, West Springfield	84
	THOMAS W. EMERSON CO., Boston, Mass.	
1001	Detroit Dark Red P. H. Adams, Northboro	80
1081	Detroit Dark Red Wallace Grain Co., Clinton	80
1555	Crosby's Egyptian Goodman Hardware Co., Framingham	90
	FRASER'S, Wellesley, Mass.	
1440	Crosby's Egyptian (Boston Crosby) Fraser's, Wellesley	86
	FERRY-MORSE SEED CO., Detroit, Mich.	
1322	Detroit Dark Red Carlisle Hardware Co., Springfield	92
	CHARLES C. HART SEED CO., Wethersfield, Conn.	
1110	Detroit Dark Red Saunders Hardware Co., Middleboro	88
1112	Crosby's Egyptian Saunder's Hardware Co., Middleboro	84

Lab. No.	Variety and Source	True to Type Per Cent
	BEETS — Concluded	
	LEONARD SEED CO., Chicago, Ill.	
1572	Detroit Dark Red St. George Hardware Co., Worcester	90
	NORTHRUP KING & CO., Minneapolis, Minn.	
1299	Crosby's Egyptian Aubuchon Hardware Co., Ayer	88
	ROSS BROS. CO., Worcester, Mass.	
1164	Crosby's Egyptian (Ea. Egyptian) Allen Wheeler, Clover Farm, West Brookfield	88
1388	Crosby's Egyptian E. J. Swan & Co., Westboro	76
1394	Edmand's Globe Turnip Fred's Hardware Co., Westboro	80
	F. H. WOODRUFF & SONS, Milford, Conn.	
1128	Early Wonder J. B. Sibley & Son, Ware	72
1129	Crosby's Egyptian J. B. Sibley & Son, Ware	84
1552	Woodruff's Early Wonder Boston Supply Co., Framingham	74
	S. D. WOODRUFF & SONS, Orange, Conn.	
1221	Early Wonder Farm Service Stores, West Berlin	84
	CARROTS	
	JOSEPH BRECK & SONS CORP., Boston, Mass.	
1422	Long Orange Pebeco Hardware Co., Wellesley	86
1441	Danvers Half Long Joseph Breck & Sons Corp., Boston	88
1486	Danvers Half Long Joseph Breck & Sons Corp., Boston	90
1487	Long Orange Joseph Breck & Sons Corp., Boston	76
1488	Chantenay Joseph Breck & Sons Corp., Boston	88
1489	Danvers Half Long Joseph Breck & Sons Corp., Boston	88
	COMSTOCK-FERRE & CO., Wethersfield, Conn.	
1094	Hutchinson W. M. Lee Co., Clinton	60
1096	Danvers Half Long W. M. Lee Co., Clinton	68
1279	Danvers Half Long George Moison Hardware Co., Groton	56
	EASTERN STATES FARMERS' EXCHANGE, West Springfield, Mass.	
1329	Danvers Half Long—Tapering Late Eastern States Farmers' Exchange, West Springfield	76
1330	Nantes (Lot No. 7 A 32127) Eastern States Farmers' Exchange, West Springfield	48
1331	Hutchinson (Lot No. 7 A 1617) Eastern States Farmers' Exchange, West Springfield	76
	THOMAS W. EMERSON CO., Boston, Mass.	
1211	Improved Long Orange Uxbridge Hardware Co., Uxbridge	76
	FERRY-MORSE SEED CO., Detroit, Mich.	
1320	Danvers Half Long Carlisle Hardware Co., Springfield	56

Lab. No.	Variety and Source	True to Type Per Cent
	CARROTS — Concluded	
	FITCHBURG HARDWARE CO., Fitchburg, Mass.	
1256	Chantenay	88
	Fitchburg Hardware Co., Fitchburg	
	CHARLES C. HART SEED CO., Wethersfield, Conn.	
1068	Long Orange	88
	Waite's Hardware Co., Worcester	
1069	Danvers Half Long	68
	Waite's Hardware Co., Worcester	
1236	New Orange	80
	Leominster Hardware Co., Leominster	
	BUDD D. HAWKINS, Reading, Vt.	
1521	Danvers Half Long	88
	Lamson Hardware Co., Marlboro	
1523	Oxheart	86
	Lamson Hardware Co., Marlboro	
1552	Improved Long Orange	84
	Lamson Hardware Co., Marlboro	
	ROSS BROS. CO., Worcester, Mass.	
1165	Danvers Half Long	76
	Allen Wheeler, Clover Farm, West Brookfield	
	F. H. WOODRUFF & SONS, Milford, Conn.	
1130	Danvers Half Long	64
	J. B. Sibley & Sons, Ware	
	S. D. WOODRUFF & SONS, Orange, Conn.	
1263	Chantenay	88
	Central Hardware Co., Fitchburg	
	ENDIVE	
	THOMAS W. EMERSON CO., Boston, Mass.	
1191	Broad Leaf	100
	Casey's Hardware Co., Milford	
1192	Endive	100
	F. A. Gould, Milford	
	LETTUCE	
	THOMAS W. EMERSON CO., Boston, Mass.	
1195	Big Boston	98
	F. A. Gould, Milford	
1213	Iceberg	98
	Uxbridge Hardware Co., Uxbridge	
	D. LANDRETH SEED CO., Bristol, Pa.	
1161	Prizehead	96
	P. A. Richard Hardware Co., Spencer	
	JEROME B. RICE SEED CO., Cambridge, N. Y.	
1090	Early Curled Simpson	94
	Hamilton Hardware Co., Clinton	
	ONIONS	
	ROSS BROS. CO., Worcester, Mass.	
1173	Yellow Globe Danvers	90
	A. S. Tucker, Warren	
	S. D. WOODRUFF & SONS, Orange, Conn.	
1268	Yellow Globe Danvers	90
	Central Hardware Co., Fitchburg	
	PARSNIP	
	COMSTOCK-FERRE & CO., Wethersfield, Conn.	
1184	Champion Hollow Crown	97
	Adams & Co., Holliston	
1281	Hollow Crown	92
	George Moison Hardware Co., Groton	

Lab. No.	Variety and Source	True to Type Per Cent
	PARSNIP — Concluded	
	THOMAS W. EMERSON CO., Boston, Mass.	
1209	Long Smooth Uxbridge Hardware Co., Uxbridge	96
	D. LANDRETH SEED CO., Bristol, Pa.	
1050	Hollow Crown Elwood Adams Co., Worcester	92
	F. H. WOODRUFF & SONS, Milford, Conn.	
1131	Hollow Crown J. B. Sibley & Son, Ware	96
	S. D. WOODRUFF & SONS, Orange, Conn.	
1219	Hollow Crown Farm Service Store, West Berlin	100
1269	Improved Hollow Crown Central Hardware Co., Fitchburg	75
	PEAS	
	THOMAS W. EMERSON CO., Boston, Mass.	
1217	Thomas Laxton Andrews & Taylor, West Berlin	94
1218	Sutton's Excelsior Andrews & Taylor, West Berlin	98
	D. LANDRETH SEED CO., Bristol, Pa.	
1154	Gradus P. A. Richard Hardware Co., Spencer	100
1155	Telephone P. A. Richard Hardware Co., Spencer	100
	JEROME B. RICE SEED CO., Cambridge, N. Y.	
1136	Improved Dwarf Telephone R. E. Faulkner & Co., Palmer	100
1137	Laxtonian R. E. Faulkner & Co., Palmer	95
1138	Sutton's Excelsior R. E. Faulkner & Co., Palmer	100
1139	Gradus R. E. Faulkner & Co., Palmer	93
	ROSS BROS. CO., Worcester, Mass.	
1168	Alderman Allen Wheeler, Clover Farm, West Brookfield	100
1169	Blue Bantam Allen Wheeler, Clover Farm, West Brookfield	100
	D. LANDRETH SEED CO., Bristol, Pa.	
1157	Nott's Excelsior P. A. Richard Hardware Co., Spencer	100
	RADISH	
	FERRY-MORSE SEED CO., Detroit, Mich.	
1319	Early Scarlet Globe Carlisle Hardware Co., Springfield	75
	BUDD D. HAWKINS, Reading, Vt.	
1519	Early Scarlet Turnip, White Tipped Lamson Hardware Co., Marlboro	100
1520	Early Scarlet Turnip Lamson Hardware Co., Marlboro	100
	D. LANDRETH SEED CO., Bristol, Pa.	
1046	Scarlet Globe Elwood Adams Co., Worcester	80
	ROSS BROS. CO., Worcester, Mass.	
1392	Scarlet Globe Fred's Hardware Co., Westboro	95

Lab. No.	Variety and Source	True to Type Per Cent
	RADISH — Concluded	
	STERLING SEED CO., Minneapolis, Minn.	
1474	French Breakfast	100
	Grant's Store, Waltham	
	F. H. WOODRUFF & SONS, Milford, Conn.	
1133	French Breakfast	90
	J. B. Sibley & Son, Ware	
1450	Crimson Giant	100
	Marlboro Hardware Co., Marlboro	
1551	Early Scarlet Globe	100
	Boston Supply Co., Framingham	
	S. D. WOODRUFF & SONS, Orange, Conn.	
1264	French Breakfast	90
	Central Hardware Co., Fitchburg	
	SPINACH	
	COMSTOCK-FERRE & CO., Wethersfield, Conn.	
1182	Thick Leaf Round	100
	Adams & Co., Holliston	
	THOMAS W. EMERSON CO., Boston, Mass.	
1196	Bloomsdale Savoy	100
	F. A. Gould, Milford	
	SWISS CHARD	
	COMSTOCK-FERRE & CO., Wethersfield, Conn.	
1277	Giant Lucullus	90
	(Were beets not Swiss Chard, Leaf Beets)	
	George Moison Hardware Co., Groton	
	S. D. WOODRUFF & SONS, Orange, Conn.	
1222	Lucullus	100
	Farm Service Store, West Berlin	

Studies of Flower Seeds

Conducted by the Seed Laboratory in Cooperation with the Department of Floriculture, Jessie L. Anderson and Professor Clark L. Thayer

For a third season the Department of Floriculture has cooperated with the Seed Laboratory in a study to determine the quality of seed sold in retail seed stores and in various other types of retail outlets. The seeds, which were collected by the State Seed Inspectors, were weighed and analyzed for purity in the laboratory and were tested for germination and trueness-to-type under field conditions.

Seeds of 172 lots including 37 different kinds of flowers and packeted by 28 different wholesalers were collected and classified as follows:

Ageratum	6	Matthiola	1
Alyssum	5	Mignonette	2
Aster	14	Moonflower	1
Bachelor Buttons	9	Morning Glory	6
Balsam	1	Nasturtium	10
Calendula	13	Petunia	13
Candytuft	3	Phlox	1
Carnation	1	Poppy	1
Centaurea Americana	1	Portulaca	6
Chrysanthemum	1	Ricinus	1
Cockscomb	2	Salpiglossis	2
Cosmos	7	Salvia	2
Daisy	1	Scabiosa	6
Dianthus	3	Snapdragon	3
Euphorbia	3	Spider Plant	2
Gourds	1	Thunbergia	1
Helichrysum (including Straw-flower)	2	Verbena	4
Larkspur	7	Zinnia	16
Marigold	14	Total	172

Most of the packets bore the common name of the flower, while a few seedsmen added both the scientific and common names. Some listed the color, while others gave no indication as to what color might be expected, although several were marked "Mixed" as implied by the following quoted terminology printed on the packets: Mixed, Finest Mixed, All Colors, All Sorts Mixed, Single and Double, Mixed Colors, Annual Mixed, Giant Mixed, Choice Mixed, Dwarf Mixed, Annual Mixed Colors, Special Mixture, Double Mixed, Mixture of All Colors, Single and Double Mixed, Single Mixed, Special Mixed Annual, All Colors Mixed, Prize Mixed and Gigantic Mixed. It was noted that the better wholesalers gave much of the desired information, stating the price as well as the approximate germination, the scientific and common names, and some description of the plant together with cultural directions, and the advised dates of sowing.

The entire contents of each packet was weighed and analyzed for purity.

The amount of seed found in any one packet or lot varied from less than one gram (.011 gr.) to 27.678 grams. Several seedsmen failed to state retail prices on packets. In most instances price per packet correlated with the amount of seed contained, taking into consideration the wholesale prices of seed, improved strains usually selling at higher prices than standard varieties and strains which have been on the market for several years.

Mechanical Purity

In an effort to obtain definite information as to the extent to which flower seeds, particularly those sold in sealed paper packets, carried impurities, a careful examination was made of each lot. Purity results for seed tested in the field but not including 22 samples which arrived too late for planting but were analyzed in the laboratory will be found in the table.

Of the 172 lots of flower seeds, nineteen or 11.04% were free of any impurities whatever. To state it another way, 153 lots or 88.96% contained impurities in the form of weed seeds, other crop seeds, seeds of plants other than the one in question, or inert materials consisting of fine chaff, dust, stems, floral parts, grit, or pieces of earth.

The purity percentage was found to vary from 63.88% in the case of one Ageratum to 100% in the cases of one Aster, one Calendula, two Candytufts, one Centaurea, one Cosmos, one Euphorbia, one Gourd, two Larkspurs, one Moonflower, five Morning Glories and three Nasturtiums.

Weed Seeds

Weed seeds were found in 56 of the lots, or 32.56%. One packet of Bachelor Buttons and one packet of Pinks each contained .07% of weed seeds while a packet of Stocks contained 2.08%. Various percentages were encountered between the two extremes given, with most of the packets containing only a small portion of weed seeds.

Inert Matter

Of the 172 lots, a total of 153 or 89.53% contained inert matter of one kind or another. Two packets of Ageratum carried the highest percentage, probably due to the fact that the impurities were of the same general size and weight as the seed itself. One packet carried 35.24% and the other 21.26%. The presence or absence of impurities may be due in some cases to ease of cleaning.

Other Crop Seed

Many of the packets contained seeds of flowers other than the kind under consideration, as well as seeds of field crops. Thirty, or 17.44%, contained seed of other crop plants. One packet of Stocks and one packet of Portulaca each ranked high in this particular, with "other crop seed" in one of them 6.00% and the other 3.45%. Also two packets of Verbena carried 2.22% and 1.08% respectively.

The other crop seeds as well as the weed seeds found in the various packets may be accounted for in several different ways. Since some of the "extra" seeds were kinds that are not generally found growing with flower seeds in the fields, it appears that they were either placed there intentionally or that they entered through the repacketing process or through careless harvesting and handling methods. Inert matter found may also be accounted for by the same reasoning.

Germination

No germination tests were made in the laboratory on any of the lots collected, since many of the packets contained too small a quantity of seed for both field and laboratory tests. Remarks on germination observed in the field test are

comparative and not rated on a percentage basis. After the purity tests were completed the samples were turned over to Professor Clark L. Thayer of the Department of Floriculture, who conducted tests in the field to determine the actual quality and to check the trueness-to-type.

Field Tests

Conditions during the past season were decidedly adverse for testing germination in the field. Many of the seeds were sown on June 25 after which came a rainfall of 4.59 inches during the next two days. The total precipitation for the month was 8.45 inches compared with a normal of 3.54 inches. During July the precipitation was 7.45 inches, the normal being 4.38 inches. In August the total was 2.04 inches, 2.2 inches below the normal. For September the total was 14.55 inches, whereas the normal for the month is only 3.79 inches. Thus with a total rainfall of 32.49 inches during the four months when the plants were making growth in the field it is not surprising that some kinds have not given good results. The hurricane of September 21 with the accompanying rain also caused much damage.

Larkspur, Asters, and Tall Marigolds appear to have suffered more because of the heavy rains, while Portulaca, usually considered to be partial to dry soils, has given satisfactory results.

When information is not given on Performance other than for Germination, it is due to the unfavorable conditions brought on by the heavy rains.

The first frost came on September 10 but it was so light that it did comparatively little damage. The most severe injury was caused by the frost of October 8.

When the number of seeds permitted, rows fifteen feet long were sown. Germination was rated as "good" if the seeds germinated in approximatly two-thirds the row; "fair" between one-third and two-thirds; "poor" for one-third or less. Performance was designated as "satisfactory" if the varieties were true to name, producing only a low percentage of plants which were not true to form or color, (one-third or less); "Fair" between one-third and two-thirds not true; and "unsatisfactory," if less than one-third was true to name or did not produce satisfactory plants for providing sufficient data.

As far as possible trueness-to-type was determined, but since many lots were described as mixtures or did not carry varietal names, a wide range in color and form was permissible.

NOTE: Data on precipitation and frosts were taken from the monthly bulletins "Meteorological Observations", of the Massachusetts Agricultural Station.

FLOWER SEED INSPECTION

Lab. No.	Variety and Source	Purity Tests*				Tests of Performance**		
		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination	Performance	Remarks
	AGERATUM							
1771	W. ATLEE BURPEE CO., Philadelphia, Pa. Improved Dwarf Blue Coburn Seed and Supply Co., Chelmsford	63.88	.66	35.24	0.22	Poor		Washed out by rain
1740	JOSEPH BRECK & SONS CORP., Boston, Mass. Fairy Pink Joseph Breck & Sons Corp., Boston	89.29	1.78	8.93	0.00	Fair	Satisfactory	
1415	CROSMAN SEED CO., East Rochester, N. Y. Dwarf Blue S. S. Kresge Co., Boston	80.30	0.00	19.33	.37	Fair	Satisfactory	
1725	FRASER'S, Wellesley, Mass. Blue Perfection (Germ. 85%) Franklin Hardware Plumbing & Supply Co., Franklin	88.05	.24	11.71	0.00	Good	Satisfactory	
1644	CHARLES C. HART SEED CO., Wethersfield, Conn. Blue Perfection Loud's Hardware Co., South Weymouth	78.61	.13	21.26	0.00	Good	Satisfactory	
1748	JEROME B. RICE, JR., INC., Shushan, N. Y. Annual Mixed Fred F. Smith Hardware Co., Reading	82.60	.19	17.21	0.00	Fair	Satisfactory	
	ALYSSUM							
1411	CROSMAN SEED CO., East Rochester, N. Y. Carpet of Snow S. S. Kresge Co., Boston	98.71	.22	1.07	0.00	Good	Satisfactory	
1743	MANDEVILLE & KING CO., Rochester, N. Y. Carpet of Snow Archie G. Wells, Stoneham	97.15	.10	2.64	.11	Good	Satisfactory	
1744	NORTHRUP, KING & CO., Minneapolis, Minn. Sweet Archie G. Wells, Stoneham	99.36	.13	.51	0.00	Good	Satisfactory	

1857	PERRY SEED CO., Boston, Mass. Little Gem Perry Seed Co., Boston	99.70	0.00	0.30	0.00	Good	Satisfactory	
1969	ROSS BROS. CO., Worcester, Mass. Little Gem Ross Bros. Co., Worcester	99.02	0.11	0.82	0.05	Good	Satisfactory	
	ASTER							
1770	W. ATLEE BURPEE CO., INC., Philadelphia, Pa. Giant Mixed Coburn Seed and Supply Co., Chelmsford	99.28	0.00	0.72	0.00	Good		Washed out by rain
1410	CROSMAN SEED CO., INC., East Rochester, N. Y. Earliest Flowering Queen of the Market Mixed S. S. Kresge Co., Boston	99.12	0.88	0.00	0.00	Good		
1947	Vick's Branching Mixed Colors Germination 80% S. S. Kresge Co., Lowell	98.93	0.80	0.27	0.00	Fair		
1759	FERRY MORSE SEED CO., Detroit, Mich. Giant Crego Purple, Wilt Resistant Hohman's Flowers, Abington	99.80	0.00	0.20	0.00	Good		
1763	FREDONIA SEED CO., Fredonia, N. Y. Tall Branching Finest Mixed Harvey Brown, Billerica	97.95	0.16	1.73	0.16	Fair		
1923	J. J. H. GREGORY & SON, Marblehead, Mass. Crego's Giant Comet Mixed J. J. H. Gregory & Son, Marblehead	99.47	0.40	0.13	0.00	Fair		
1624	THOMAS J. GREY CO., Boston, Mass. California Giant Sunshine (Lavender) Thomas J. Grey Co., Boston	98.75	0.16	1.09	0.00	Fair		
1883	CHARLES C. HART SEED CO., Wethersfield, Conn. Giant Comet Choice Mixed Colors H. Y. Mitchell Co., South Boston	98.70	0.08	1.22	0.00	Poor		
1980	H. V. LAWRENCE, Falmouth, Mass. Early Beauty Mixed (Wilt Resistant) H. V. Lawrence, Falmouth	99.30	0.70	0.00	0.00	Good		

FLOWER SEED INSPECTION — Continued

Lab. No.	Variety and Source	Purity Tests* Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Tests of Performance** Germination	Performance	Remarks
	ASTER—Concluded							
	PERRY SEED CO., Boston, Mass.							
1867	Early Royal White (Wilt Resistant) ..... Perry Seed Co., Boston	97.80	1.91	0.14	0.15	Good		Washed by rain
	JEROME B. RICE SEED CO., Cambridge, N. Y.							
1642	Giant Branching ..... Loud's Hardware Co., South Weymouth	100.00	0.00	0.00	0.00	Good		
1918	Giant Branching White..... Frank Howard, Inc., Pittsfield	99.39	0.20	0.41	0.00	Good		
1920	Giant Branching Purple..... Frank Howard, Inc., Pittsfield	99.34	0.44	0.22	0.00	Good		
	ROSS BROS. CO., Worcester, Mass.							
1967	Branching Mixed ..... Ross Bros. Co., Worcester	99.71	0.29	0.00	0.00	Good		
	BACHELOR BUTTON							
	THOMAS W. EMERSON CO., Boston, Mass.							
1962	Blue ..... Thomas W. Emerson Co., Boston	99.55	0.00	0.45	0.00	Good	Satisfactory	
	FERRY MORSE SEED CO., Detroit, Mich.							
1730	Double Blue ..... Town Sq. Hardware Co., Norwood	99.13	0.61	0.26	0.00	Good	Satisfactory	
	FRASER'S, Wellesley, Mass.							
1431	Double Blue, Select Florist Strain..... Germ. 90%—Fraser's Wellesley	99.56	0.07	0.37	0.00	Good	Satisfactory	
1726	Double Blue, Select Florist Strain..... Franklin Hardware Plumbing & Supply Co., Franklin	99.19	0.00	0.81	0.00	Fair	Satisfactory	
	CHARLES C. HART SEED CO., Wethersfield, Conn.							
1755	Double Blue, Florist Strain..... Read Hardware Co., Foxboro	98.06	0.65	1.02	0.27	Good	Satisfactory	

	THORNTON & CROUCH, Lawrence, Mass.							
1957	Double Blue Thornton & Crouch, Lawrence	98.86	0.51	0.63	0.00	Fair	Satisfactory	
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.							
1909	Cyanus Double Special Color Mixture Joseph Harris Co., Inc., Warehouse, Cambridge	99.25	0.60	0.15	0.00	Good	Satisfactory	Good variety of colors
	PERRY SEED CO., Boston, Mass.							
1869	Jubilee Gem Perry Seed Co., Boston	97.43	0.26	2.31	0.00	Good	Fair	Variable in height
1870	Double Blue Perry Seed Co., Boston	99.75	0.00	0.25	0.00	Fair	Satisfactory	
	BALSAM							
	STERLING SEED CO., Minneapolis, Minn.							
1481	Balsam Grant's Store, Waltham	99.32	0.00	0.68	0.00	Fair	Satisfactory	
	CALENDULA							
	CROSMAN SEED CO., East Rochester, N. Y.							
1419	Orange King, Germination 75% S. S. Kresge Co., Boston	98.69	0.00	1.31	0.00	Good	Satisfactory	
1945	Orange King, Germination 75% S. S. Kresge Co., Boston	98.97	0.00	1.03	0.00	Good	Satisfactory	
	THOMAS W. EMERSON CO., Boston, Mass.							
1966	Orange Shaggy Thomas W. Emerson Co., Boston	97.07	0.00	2.81	0.12	Fair	Satisfactory	
	FERRY MORSE SEED CO., Detroit, Mich.							
1728	Orange King Sears Roebuck Co., Norwood	98.81	0.15	1.04	0.00	Good	Satisfactory	
	FRASER'S, Wellesley, Mass.							
1637	Orange King (Germ. 75%) J. MacFarland & Son, Wollaston	98.26	0.00	1.68	0.06	Good	Satisfactory	
	J. J. H. GREGORY & SON, Marblehead, Mass.							
1937	Radio J. J. H. Gregory & Son, Marblehead	100.00	0.00	0.00	0.00	Poor	Not Satisfactory	
	CHARLES C. HART SEED CO., Wethersfield, Conn.							
1884	Orange King H. Y. Mitchell, South Easton	98.98	0.00	0.95	0.07	Good	Satisfactory	

FLOWER SEED INSPECTION — Continued

Lab. No.	Variety and Source	Purity Tests* Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Tests of Performance** Germination	Performance	Remarks
	CALENDULA—Concluded							
1628	HOVEY & CO., Boston, Mass. Ball's Orange Improved ..... Hovey & Co., Boston	98.08	0.00	1.92	0.00	Good	Satisfactory	
1732	MANDEVILLE, KING & CO., Rochester, N. Y. Radio ..... Town Sq. Hardware Co., Norwood	99.45	0.37	0.18	0.00	Good	Not Satisfactory	Single and double forms
1762	PAGE SEED CO., Greene, N. Y. Pot Marigold Mixed ..... Harvey Brown, Billerica	97.14	0.00	2.86	0.00	Fair	Satisfactory	Good variety of colors
1871	PERRY SEED CO., Boston, Mass. Sensation (Campfire) ..... Perry Seed Co., Boston	92.32	0.53	7.15	0.00	Good	Satisfactory	
1873	Double Finest Mixed ..... Perry Seed Co., Boston	99.67	0.00	0.08	0.25	Good	Satisfactory	Little variation in color
1757	ROSS BROS. CO., Worcester, Mass. Choice Mixed ..... J. William Gove, Inc., Foxboro	99.33	0.00	0.67	0.00	Good	Satisfactory	
	CANDYTUFT							
1413	CROSMAN SEED CO., East Rochester, N. Y. Umbellata Mixed Colors (Germ. 85%) ..... S. S. Kresge Co., Boston	99.71	0.00	0.29	0.00	Poor	Washed out by rain	
1978	H. V. LAWRENCE, Falmouth, Mass. Giant Hyacinth-Flowered White ..... H. V. Lawrence, Falmouth	100.00	0.00	0.00	0.00	Good	Satisfactory	
1856	PERRY SEED CO., Boston, Mass. Giant White Perfection ..... Perry Seed Co., Boston	100.00	0.00	0.00	0.00	Fair	Satisfactory	

	CARNATION							
1416	CROSMAN SEED CO., East Rochester, N. Y. Perennial, Mixed Colors (Germ. 80%) S. S. Kresge Co., Boston	94.60	0.00	5.40	0.00	Good	Unsatisfactory	Did not bloom
	CENTAUREA							
1922	J. J. H. GREGORY & SON, Marblehead, Mass. Americana (Basket Flower) J. J. H. Gregory & Son, Marblehead	100.00	0.00	0.00	0.00	Good	Satisfactory	
	CHRYSANTHEMUM							
1428	FRASER'S, Wellesley, Mass. All sorts mixed; single and double Germination 65% Fraser's, Wellesley	96.89	0.25	2.86	0.00	Good		
	COCKSCOMB							
1948	CROSMAN SEED CO., East Rochester, N. Y. Celosia cristata—double Dwarf Mixed S. S. Kresge Co., Lowell	99.09	0.00	0.91	0.00	Good		
1768	EMPIRE SEED CO., Fredonia, N. Y. Celosia cristata—Mixed colors Chelmsford Square Garage, Chelmsford	98.94	0.00	0.78	0.28	Good		
	COSMOS							
1737	JOSEPH BRECK & SONS CORP., Boston, Mass. Double or Anemone flowered Joseph Breck & Sons Corp., Boston	99.42	0.00	0.58	0.00	Fair	Satisfactory	
1403	FRASER'S, Wellesley, Mass. Klondyke Orange Flare (Germ. 90%) Fraser's, Wellesley	99.95	0.00	0.05	0.00	Good	Satisfactory	
1638	Klondyke Orange Flare (Germ. 90%) J. MacFarland & Son, Wollaston	100.00	0.00	0.00	0.00	Good	Satisfactory	
1618	THOMAS J. GREY CO., Boston, Mass. Mammoth Sensation Thomas J. Grey Co., Boston	99.56	0.00	0.44	0.00	Good		
1629	HOVEY & CO., Boston, Mass. Extra Early Mammoth Hovey & Co., Boston	94.52	0.00	5.48	0.00	Fair		

FLOWER SEED INSPECTION — Continued

Lab. No.	Variety and Source	Purity Tests* Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Tests of Performance** Germination	Performance	Remarks
	COSMOS—Concluded							
1859	PERRY SEED CO., Boston, Mass. Sensation Purity (Pure White) ..... Perry Seed Co., Boston	94.59	0.00	5.41	0.00	Good		
1733	JEROME B. RICE SEED CO., Cambridge, N. Y. Orange Flare ..... H. S. Spear & Son, Walpole	99.41	.20	.39	0.00	Good	Satisfactory	
	DAISY							
1765	EMPIRE SEED CO., Fredonia, N. Y. African—Mixed ..... Chelmsford Square Garage, Chelmsford	98.84	0.00	1.16	0.00	Good		
	DIANTHUS							
1779	JOSEPH BRECK & SONS CORP., Boston, Mass. Geisha Girl ..... Joseph Breck & Sons Corp., Boston	97.85	0.08	2.07	0.00	Good	Satisfactory	
1417	CROSMAN SEED CO., East Rochester, N. Y. Garden or Grass (Biennal) mixed..... Germination 85% S. S. Kresge Co., Boston	98.01	0.07	1.92	0.00	Good	Satisfactory	
1402	J. J. H. GREGORY & SON, Marblehead, Mass. Summer, Double Star..... J. J. H. Gregory & Son, Marblehead	99.57	0.00	0.43	0.00	Good	Satisfactory	
	EUPHORBIA							
1429	FRASER'S, Wellesley, Mass. Snow-on-the-Mountain (Germ. 60%)..... Fraser's, Wellesley	99.10	0.00	0.90	0.00	Fair		
1903	JOSEPH HARRIS CO., INC., Coldwater, N. Y. Snow-on-the-Mountain (Germ. 84%)..... Joseph Harris Co., Inc., Warehouse, Cambridge	100.00	0.00	0.00	0.00	Fair	Washed out by rain	
1861	PERRY SEED CO., Boston, Mass. Variegata ..... Perry Seed Co., Boston	98.64	1.22	0.14	0.00	Poor	Not Satisfactory	

	GOURDS						
1863	PERRY SEED CO., Boston, Mass. Ornamental Mixed Perry Seed Co., Boston	100.00	0.00	0.00	0.00	Good	Satisfactory—Mediocre Mixture
	HELICHRYSUM						
1734	PAGE SEED CO., Greene, N. Y. Helichrysum Straw Flower Mixed H. A. Spear & Co., Waltham	95.90	0.18	3.92	0.00	Good	Satisfactory
1904	JOSEPH HARRIS CO., INC., Coldwater, N. Y. Helichrysum Double Variety Mixture Joseph Harris Co., Inc., Warehouse, Cambridge	98.58	0.00	1.42	0.00	Good	Satisfactory
	LARKSPUR						
1769	W. ATLEE BURPEE CO., Philadelphia, Pa. Blue Bell Annual Coburn Seed & Supply Co., Chelmsford	100.00	0.00	0.00	0.00	Good	
1946	CROSMAN SEED CO., East Rochester, N. Y. Annual Mixed Colors (1938) S. S. Kresge Co., Lowell	99.90	0.00	0.10	0.00	Fair	
1917	J. J. H. GREGORY & SON, Marblehead, Mass. Los Angeles J. J. H. Gregory & Son, Marblehead	99.36	0.00	0.64	0.00	Fair	
1943	La France J. J. H. Gregory & Son, Marblehead	99.03	0.00	0.97	0.00	Fair	
1972	ROSS BROS. CO., Worcester, Mass. Giant Imperial Finest Mixed Ross Bros. Co., Worcester	99.27	0.00	0.73	0.00	Fair	
1988	VAUGHAN'S SEED STORE, New York City, N. Y. Double Annual Special Mixture Hyannis Flower Shop, Hyannis	100.00	0.00	0.00	0.00	Poor	
1479	STERLING SEED CO., Minneapolis, Minn. Lustrous Carmine Grant's Store, Waltham	99.62	0.00	0.38	0.00	Good	
	MARIGOLD						
1773	W. ATLEE BURPEE CO., Philadelphia, Pa. Yellow Supreme Coburn Seed & Supply Co., Chelmsford	97.05	0.00	2.95	0.00	Good	Satisfactory

FLOWER SEED INSPECTION — Continued

Lab. No.	Variety and Source	Purity Tests* Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Tests of Performance** Germination	Performance	Remarks
	MARIGOLD—Concluded							
	CROSMAN SEED CO., East Rochester, N. Y.							
1950	Tall African Mixed, Germination 85% ..... S. S. Kresge Co., Lowell	97.98	0.00	2.02	0.00	Good		
	THOMAS W. EMERSON CO., Boston, Mass.							
1960	Yellow Supreme ..... Thomas W. Emerson Co., Boston	94.79	0.00	5.21	0.00	Good		
	EMPIRE SEED CO., Fredonia, N. Y.							
1767	Guinea Gold ..... Chelmsford Square Garage, Chelmsford	93.84	0.00	6.16	0.00	Fair		
	J. J. H. GREGORY & SON, Marblehead, Mass.							
1936	African Orange All Double..... J. J. H. Gregory & Son, Marblehead	93.61	0.21	6.18	0.00	Good		
	THOMAS J. GREY CO., Boston, Mass.							
1617	French Dwarf Double (Harmony) ..... Thomas J. Grey Co., Boston	96.52	0.00	3.48	0.00	Good	Satisfactory	
	CHARLES C. HART SEED CO., Wethersfield, Conn.							
1731	Eldorado, Tall African ..... Town Square Hardware Co., Norwood	97.23	0.00	2.77	0.00	Good		
	HOVEY & CO., Boston, Mass.							
1630	Yellow Supreme ..... Hovey & Co., Boston	97.73	0.00	2.27	0.00	Good		
	MANDEVILLE & KING CO., Rochester, N. Y.							
1741	Harmony, French Dwarf..... Archie G. Wells, Stoneham	96.08	0.31	3.61	0.00	Good	Satisfactory	
1928	Yellow Supreme ..... Pierson Hardware Co., Pittsfield	97.49	0.00	2.51	0.00	Good		
	NORTHRUP, KING & CO., Minneapolis, Minn.							
1750	African ..... Johnson's Hardware & Paint Co., Wrentham	89.86	0.00	10.14	0.00	Good		

1864	PERRY SEED CO., Boston, Mass. Harmony Dwarf Double French Perry Seed Co., Boston	99.38	0.00	0.62	0.00	Good	Satisfactory
1756	ROSS BROS. CO., Worcester, Mass. African Double Mixed J. William Gove, Inc., Foxboro	88.64	0.00	11.36	0.00	Good	
1956	THORNTON & CROUCH, Lawrence, Mass. Guinea Gold Thornton & Crouch, Lawrence	98.56	0.00	1.44	0.00	Good	
	MATTHIOLA BICORNIS						
1478	STERLING SEED CO., Minneapolis, Minn. Evening Scented Stock Grant's Store, Waltham	90.74	2.08	1.18	6.00	Fair	Satisfactory
	MIGNONETTE						
1964	THOMAS W. EMERSON CO., Boston, Mass. Matched Varieties Mixed Thomas W. Emerson Co., Boston	97.83	0.19	1.98	0.00	Fair	
1482	STERLING SEED CO., Minneapolis, Minn. Mignonette (Sweet Scented) Grant's Store, Waltham	99.13	0.29	0.55	0.03	Fair	
	MOONFLOWER						
1480	STERLING SEED CO., Minneapolis, Minn. Ipomoea noctiflora—White Seeded Grant's Store, Waltham	100.00	0.00	0.00	0.00	Good	
	MORNING GLORY						
1944	W. ATLEE BURPEE CO., Philadelphia, Pa. Early Blooming Heavenly Blue Lynn Bird & Seed Store, Lynn	100.00	0.00	0.00	0.00	Good	Satisfactory
1760	FERRY-MORSE SEED CO., Detroit, Mich Heavenly Blue Hohman's Flowers, Abington	100.00	0.00	0.00	0.00	Good	Satisfactory
1729	FRASER'S, Wellesley, Mass. Heavenly Blue, Clark's Mammoth Early Flowering (Germ. 85%) Town Square Hardware Co., Norwood	100.00	0.00	0.00	0.00	Good	Satisfactory

FLOWER SEED INSPECTION — Continued

Lab. No.	Variety and Source	Purity Tests*				Tests of Performance**		
		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination	Performance	Remarks
	MORNING GLORY—Concluded							
	CHARLES C. HART SEED CO., Wethersfield, Conn.							
1635	Improved Heavenly Blue..... J. MacFarland & Son, Wollaston	100.00	0.00	0.00	0.00	Good	Satisfactory	
	MANDEVILLE & KING CO., Rochester, N. Y.							
1952	Early Flowering Heavenly Blue Improved..... Lynn Bird & Seed Co., Lynn	98.80	0.00	1.20	0.00	Good	Satisfactory	
	PERRY SEED CO., Boston, Mass.							
1868	Heavenly Blue ..... Perry Seed Co., Boston	100.00	0.00	0.00	0.00	Good	Satisfactory	
	NASTURTIUM							
	BARTLETT & DOW CO., Lowell, Mass.							
1774	Dwarf Mixed ..... Bartlett & Dow Co., Lowell	100.00	0.00	0.00	0.00	Good	Satisfactory	
	JOSEPH BRECK & SONS CORP., Boston, Mass.							
1641	Dwarf ..... Jesseman's Hardware Co., So. Weymouth	99.62	0.00	0.38	0.00	Good	Satisfactory	
	COMSTOCK-FERRE & CO., Wethersfield, Conn.							
1753	Dwarf Mixed ..... Johnson's Hardware & Paint Co., Wrentham	99.49	0.00	0.51	0.00	Good	Satisfactory	
	FRASER'S Wellesley, Mass.							
1724	Dwarf Double Golden Globe (85% Germ.)..... Franklin Hardware Plumbing & Supply Co., Franklin	97.97	0.00	2.03	0.00	Good	Unsatisfactory	Mixed Colors
	J. J. H. GREGORY & SON, Marblehead, Mass.							
1934	Golden Gleam ..... J. J. H. Gregory & Son, Marblehead	99.79	0.00	0.21	0.00	Fair	Satisfactory	
	CHARLES C. HART SEED CO., Wethersfield, Conn.							
1882	Glorious Gleam Hybrids, Finest Mixed..... H. Y. Mitchell Co., South Easton	100.00	0.00	0.00	0.00	None		

	LEONARD SEED CO., Chicago, Ill.							
1735	Dwarf Mixed Kingman Hardware Co., Franklin	99.72	0.00	0.28	0.00	Good	Satisfactory	
	MANDEVILLE & KING CO., Rochester, N. Y.							
1639	Scarlet Gleam Jesseman's Hardware Co., South Weymouth	99.94	0.00	0.06	0.00	Fair	Unsatisfactory	Did not bloom
	PAGE SEED CO., Greene, N. Y.							
1657	Dwarf or Tom Thumb Choice Mixed Stone Hardware Co., Brockton	99.91	0.00	0.09	0.00	Good	Unsatisfactory	Not Dwarf
	PERRY SEED CO., Boston, Mass.							
1866	Double Glorious Gleam Hybrids Perry Seed Co., Boston	100.00	0.00	0.00	0.00	Good	Satisfactory	
			PETUNIA					
	JOSEPH BRECK & SONS CORP., Boston, Mass.							
1738	Snowstorm Joseph Breck & Sons Corp., Boston	98.73	0.00	1.27	0.00	Poor	Unsatisfactory	
1739	Velvety Violet Joseph Breck & Sons Corp., Boston	98.79	0.00	1.21	0.00	Good	Satisfactory	
1780	Silvery Lilac Joseph Breck & Sons Corp., Boston	95.94	0.00	4.06	0.00	Good	Unsatisfactory	Variable in color
1781	Single—Choice Mixed Joseph Breck & Sons Corp., Boston	97.61	0.14	2.25	0.00	Good	Satisfactory	
	CROSMAN SEED CO., East Rochester, N. Y.							
1418	Fine Mixture of All Colors (Germ. 85%) S. S. Kresge Co., Washington St., Boston	97.58	0.00	2.42	0.00	Fair	Satisfactory	
	FERRY MORSE SEED CO., Detroit, Mich.							
1761	Crimson King Hohman's Flowers, Abington	95.92	0.00	3.88	0.20	Fair		Washed out by rain
	J. J. H. GREGORY & SON, Marblehead, Mass.							
1929	New Carnation Flowered, Double Mixed J. J. H. Gregory & Son, Marblehead	88.89	0.00	11.11	0.00	Fair	Unsatisfactory	Semi-double
	THOMAS J. GREY CO., Boston, Mass.							
1620	Grey's Special Fringed, Double Thomas J. Grey Co., Boston	98.89	0.00	1.11	0.00	Good	Satisfactory	
1626	Hybrida Topaz Rose Thomas J. Grey Co., Boston	97.60	0.34	2.06	0.00	Good	Satisfactory	

FLOWER SEED INSPECTION — Continued

Lab. No.	Variety and Source	Purity Tests*				Tests of Performance**		
		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination	Performance	Remarks
	PETUNIA—Concluded							
1874	CHARLES C. HART SEED CO., Wethersfield, Conn. Hybrida Finest Mixed Colors..... A. L. Holden, Inc., Milton	92.08	0.08	7.68	0.16	Good	Satisfactory	
1752	NORTHRUP KING & CO., Minneapolis, Minn. Pink ..... Johnson's Hardware & Paint Co., Wrentham	98.30	0.14	1.56	0.00	Good	Satisfactory	
1860	PERRY SEED CO., Boston, Mass. Thodosia, Giant Single Fringed Rose..... Perry Seed Co., Boston	97.60	0.00	2.40	0.00	Poor	Unsatisfactory	
1885	JEROME B. RICE SEED CO., Cambridge, N. Y. Finest Mixed ..... H. Y. Mitchell Co., South Easton	93.73	0.31	5.33	0.63	Good	Fair	Little variation in color
	PHLOX DRUMMONDI							
1426	FRASER'S, Wellesley, Mass. Grandiflora Choice Mixed..... Germination 75% Fraser's, Wellesley	99.28	0.00	0.72	0.00	Good	Satisfactory	
	POPPY							
1927	J. J. H. GREGORY & SONS, Marblehead, Mass. Shirley Double Begonia—Double Flowered Sweet Briar. J. J. H. Gregory & Sons, Marblehead	98.84	0.00	1.16	0.00	Good		
	PORTULACA							
1965	THOMAS W. EMERSON CO., Boston, Mass. Single and Double ..... Thomas W. Emerson Co., Boston	96.71	0.30	2.69	0.30	Good	Satisfactory	

1766	EMPIRE SEED CO., Fredonia, N. Y. Single and Double Mixed Chelmsford Square Garage, Chelmsford	95.27	0.08	1.20	3.45	Good	Satisfactory
1425	FRASER'S, Wellesley, Mass. Choice Double, Germination 80% Fraser's, Wellesley	96.41	0.26	3.08	0.25	Fair	Satisfactory
1745	CHARLES C. HART SEED CO., Wethersfield, Conn. Single Mixed F. S. Eaton Hardware Co., Reading	98.17	0.09	1.57	0.17	Poor	Unsatisfactory
1751	NORTHRUP KING & CO., Minneapolis, Minn. Mixed Colors Johnson Hardware & Paint Co., Wrentham	98.69	0.00	1.19	0.12	Good	Satisfactory
1643	JEROME B. RICE SEED CO., Cambridge, N. Y. Double and Single Mixed Loud's Hardware Co., South Weymouth	95.17	0.37	4.09	0.37	Fair	Satisfactory
	RICINUS						
1430	FRASER'S, Wellesley, Mass. Castor Bean, Germination 80% Fraser's, Wellesley	97.10	0.00	2.90	0.00	Good	Satisfactory
	SALPIGLOSSIS						
1622	THOMAS J. GREY CO., Boston, Mass. New Dwarf Giant Mixed Thomas J. Grey Co., Boston	97.83	0.00	2.17	0.00	Good	
1749	JEROME B. RICE SEED CO., Cambridge, N. Y. Annual Choice Mixed Fred F. Smith Hardware Co., Reading	98.47	0.22	1.09	0.22	Good	
	SALVIA						
1775	BARTLETT & DOW CO., Lowell, Mass. Bonfire Bartlett & Dow Co., Lowell	99.40	0.00	0.60	0.00	Good	Satisfactory
1427	FRASER'S, Wellesley, Mass. Bonfire or Clara Bedman (Germ. 60%) Fraser's, Wellesley	98.86	0.00	1.14	0.00	Poor	Unsatisfactory

FLOWER SEED INSPECTION — Continued

Lab. No.	Variety and Source	Purity Tests* Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Tests of Performance** Germination	Performance	Remarks
	SCABIOSA							
	THOMAS W. EMERSON CO., Boston, Mass.							
1958	Double Mixed ..... Thomas W. Emerson Co., Boston	91.99	0.00	8.01	0.00	Fair		
	FRASER'S, Wellesley, Mass.							
1423	Annual Hybrids, Double Finest Mixed, Germ. 85%.. Fraser's, Wellesley	99.93	0.00	0.07	0.00	Fair		
	J. J. H. GREGORY & SONS, Marblehead, Mass.							
1926	Giant Mixed ..... J. J. H. Gregory & Sons, Marblehead	96.00	0.00	4.00	0.00	Poor	Unsatisfactory	
	THOMAS J. GREY CO., Boston, Mass.							
1625	Salmon Beauty ..... Thomas J. Grey Co., Boston	98.34	0.00	1.66	0.00	Poor	Unsatisfactory	
	CHARLES C. HART SEED CO., Wethersfield, Conn.							
1636	Mourning Bride Mixed ..... J. MacFarland & Son, Wollaston	99.76	0.00	0.24	0.00	Good		
	PERRY SEED CO., Boston, Mass.							
1865	Grandiflora Blue Cockade ..... Perry Seed Co., Boston	99.41	0.00	0.59	0.00	Fair		
	SNAPDRAGON							
	THOMAS W. EMERSON CO., Boston, Mass.							
1961	Rust Resistant Mixed ..... Thomas W. Emerson Co., Boston	99.25	0.00	0.75	0.00	Fair		
	JEROME B. RICE, JR., INC., Shushan, N. Y.							
1747	Special Mixed Annual ..... Fred F. Smith Hardware Co., Reading	98.58	0.14	1.28	0.00	Fair	Satisfactory	
	ROSS BROS. CO., Worcester, Mass.							
1968	University of California Rust Proof..... Ross Bros. Co., Worcester	99.27	0.00	0.44	0.29	Fair	Satisfactory	

	SPIDER PLANT							
	JOSEPH BRECK & SONS CORP., Boston, Mass.							
1782	White Feather Joseph Breck & Sons Corp., Boston	99.68	0.00	0.32	0.00	Good	Satisfactory	
1783	Rose Queen Joseph Breck & Sons Corp., Boston	99.80	0.00	0.20	0.00	Good	Satisfactory	
	THUNBERGIA							
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.							
1906	Alata Yellow and Orange Joseph Harris Co., Warehouse, Cambridge	99.94	0.00	0.06	0.00	Good	Satisfactory	
	VERBENA							
	CROSMAN SEED CO., Rochester, N. Y.							
1414	Hybrida All Colors Mixed (1938) S. S. Kresge Co., Boston	96.79	0.00	3.21	0.00	Fair	Satisfactory	Lacking variety in color
	FREDONIA SEED CO., Fredonia, N. Y.							
1764	Finest Mixed Harvey Brown, Billerica	96.63	0.27	2.97	0.13	None		
	CHARLES C. HART SEED CO., Wethersfield, Conn.							
1754	Hybrida Best Mixture Read Hardware Co., Foxboro	95.94	.33	2.65	1.08	Poor	Unsatisfactory	
	MANDEVILLE KING & CO., Rochester, N. Y.							
1742	All colors Archie G. Wells, Stoneham	96.19	0.00	1.59	2.22	Fair	Satisfactory	Good variety of colors
	ZINNIA							
	W. ATLEE BURPEE, Philadelphia, Pa.							
1772	Giant Flowered Old Gold Coburn Seed & Supply Co., Chelmsford	98.59	0.00	1.41	0.00	Good	Satisfactory	Some flowers rose color
	CROSMAN SEED CO., East Rochester, N. Y.							
1412	California Giant Burnt Orange (Germ. 90%) S. S. Kresge Co., Boston	96.95	0.00	2.94	0.11	Good	Satisfactory	Some flowers golden yellow
1949	California Giant Rose Pink S. S. Kresge Co., Boston	99.59	0.00	0.41	0.00	Good	Unsatisfactory	Rose-red and scarlet red

FLOWER SEED INSPECTION — Continued

Lab. No.	Variety and Source	Purity Tests*				Tests of Performance**		
		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination	Performance	Remarks
	ZINNIA—Concluded							
	DEERINGTON ZINNIA GARDENS, Bargersville, Ind.							
1122	Dahlia Flowered, Pride of Indiana Dark Velvety Red to Scarlet ..... S. S. Kresge Co., Lowell	93.13	0.00	7.87	0.00	Good	Satisfactory	Some flowers violet red
	FERRY MORSE SEED CO., Detroit, Mich.							
1727	Giant Dahlia Flowered Mixed..... Sears Roebuck Co., Norwood	99.17	0.00	0.83	0.00	Good	Satisfactory	
	J. J. H. GREGORY & SONS, Marblehead, Mass.							
1919	Giant Dahlia Flowered Mixed ..... J. J. H. Gregory & Sons, Marblehead	99.42	0.00	0.58	0.00	Fair	Satisfactory	
	THOMAS J. GREY CO., Boston, Mass.							
1619	Lilliput Tom Thumb Mixed..... ..... Thomas J. Grey Co., Boston	94.82	0.00	5.18	0.00	Good	Satisfactory	
1623	Linearis, Single (Golden Orange)..... Thomas J. Grey Co., Boston	97.92	0.00	2.08	0.00	Fair	Satisfactory	
	HOVEY & CO., Boston, Mass.							
1627	Giant Dahlia Flowered Crimson Monarch..... Hovey & Co., Boston	98.07	0.00	1.93	0.00	Good	Satisfactory	
	MANDEVILLE & KING CO., Rochester, N. Y.							
1640	California Giant Red..... Jesseman's Hardware Co., So. Weymouth	98.40	0.00	1.60	0.00	Good	Satisfactory	
	PAGE SEED CO., Greene, N. Y.							
1656	Double Choice Mixed..... Stone's Hardware Co., Brockton	97.56	0.00	2.44	0.00	Good	Satisfactory	
	PERRY SEED CO., Boston, Mass.							
1862	Fantasy Mixture ..... Perry Seed Co., Boston	98.44	0.00	1.56	0.00	Good	Satisfactory	Few flowers with flat petals

1872	Dahlia Flowered Oriole ..... Perry Seed Co., Boston	99.32	0.00	0.68	0.00	Good	Satisfactory
	ROSS BROS. CO., Worcester, Mass.						
1758	Tall Double Mixed..... J. William Gove Inc., Foxboro	93.44	0.18	6.32	0.06	Fair	Satisfactory
1974	Dahlia Flowered Gold Medal Mixed..... Ross Bros. Co., Worcester	98.36	0.00	1.64	0.00	Good	Satisfactory
	THORNTON & CROUCH, Lawrence, Mass.						
1955	Baby Lilliput Mixed ..... Thornton & Crouch, Lawrence	97.51	0.18	2.31	0.00	Good	Satisfactory

* Purity tests were made in the Seed Laboratory by Jessie L. Anderson.

** Tests of performance were made in the field by Professor Clark L. Thayer of the Floriculture Department.

QUALITY OF ONION SEED PRODUCED IN THE CONNECTICUT VALLEY, SEASON OF 1937

During the spring months of 1938, eighteen lots of onion seed produced in the Connecticut Valley were cleaned at the Seed Laboratory, using the same method[1] as in previous years.

Conditions for culture of the crop and drying of the seed were extremely unfavorable in 1937, resulting in a low yield of mature seed as shown by the proportion of cleaned seed from the bulks received. This and the low comparative viability of onion seed of the various grades obtained from each lot is shown by the following table. Lots 1, 2 and 8 had been partly cleaned before milling at the laboratory.

[1]See Massachusetts Agricultural Experiment Station, Control Series, Bulletin Nos. 86, 1936 and 92, 1938.

Lot No.	Weight of Seed		Grade No. 1		Grade No. 2		Grade No. 3	
	Before Cleaning Lb.	Clean Seed Lb.	Weight Lb.	Germination Percent	Weight Lb.	Germination Percent	Weight Lb.	Germination Percent
1	60.5	57.3	17.5	81	30.5	74	9.3	48
2	29.0	14.3	7.0	84	6.0	82	1.3	75
3	37.0	13.5	1.5	66	8.0	62	4.0	45
4	23.0	3.0	1.5	90	1.5	51	0.0	
5	79.7	11.3	1.0	79	6.3	64	4.0	36
6	39.0	15.2	1.5	89	10.7	85	3.0	48
7	15.5	8.0	1.3	93	5.7	87	1.0	57
8	25.5	12.4	0.9	82	6.5	77	5.0	31
9	3.5	0.8	0.0		0.3	63	0.5	25
10	11.5	2.9	0.0		2.0	62	0.9	23
11	66.0	9.5	1.3	88	4.7	87	3.5	58
12	72.0	11.0	1.5	91	6.0	86	3.5	53
13	45.0	14.3	2.3	82	8.5	75	3.5	48
14	22.0	8.4	1.0	93	4.7	90	2.7	58
15	40.0	4.9	0.3	74	2.3	75	2.3	33
16	15.5	3.2	0.0		2.1	81	1.1	56
17	28.0	6.3	0.5	90	4.0	87	1.8	65
18	14.0	8.5	0.7	90	2.3	83	5.5	53
Total	626.7	204.8	39.8		112.1		52.9	

CLEANING SEED

Service to Tobacco Growers

Tobacco growers either produce their own seed or obtain it from a neighbor who has a surplus of a desirable strain.

For many years locally grown seed was cleaned by the Experiment Station at the Botanical Laboratory, using apparatus designed and assembled by Dr. George E. Stone. Due to lessened demand for the service and the need for new apparatus, cleaning of tobacco seed was discontinued in 1935.

Increased production of tobacco in 1936 and 1937 led to renewed demand for this service in response to which a new type of inexpensive but efficient cleaner was set up at the Seed Laboratory in the spring of 1938, and 42 samples—aggregating 33.57 lbs. were cleaned to a net of 27.21 lbs.

Lots of tobacco seed for cleaning should be sent to the Seed Laboratory, West Experiment Station. No charge is made for amounts of seed not in excess of one pound and each lot of cleaned seed will be tested for viability.

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MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

CONTROL SERIES BULLETIN No. 97 DECEMBER, 1938

Inspection of Agricultural Lime Products

By H. D. Haskins

This is the twenty-seventh report on the inspection of agricultural lime products in Massachusetts. It gives the composition of the various products which have been sold in the State during the year. In case of the ground limestone products the mechanical analysis is also given.

Massachusetts State College
Amherst, Mass.

INSPECTION OF AGRICULTURAL LIME PRODUCTS FOR THE SEASON OF 1938

By H. D. Haskins, Official Chemist [1]

Manufacturers and Brands

During 1938, 25 firms registered for sale in Massachusetts 53 brands of lime products, manufactured and sold for neutralizing acid soils, one brand of gypsum, and one brand of agricultural talc. The products are grouped as follows:

Hydrated or slaked lime	28
Ground limestone	23
Oyster shell lime	1
Lime ashes	1
Total	53
Gypsum	1
Talc	1

The analytical results which appear in this bulletin represent, with but a few exceptions where representative samples were furnished us by request, officially drawn samples secured by the same sampling agents who drew the samples for the fertilizer inspection. The samples came from a wide range of territory within the State and it is believed that they are quite representative of the lime products sold in the State as soil amendments.

The following brands were registered in Massachusetts but were not officially sampled by our inspectors. The two firms were requested to send us representative samples for analysis but the samples were not received.

Dominion Lime Co., Lime Ridge, P. Q., Canada
Dudswell Brand Agricultural Limestone

Eastern States Farmers' Exchange, Springfield, Mass.
E. S. Land Lime
E. S. Magnesian Hydrated Lime

Variations and Deficiencies in the Composition of Lime Products

Of the lime products effective in neutralizing soil acidity, about 76 percent of those analyzed fully met the minimum guarantee; of the 22 ground limestone products, 2 showed deficiencies. The Solvay Pulverized Limestone, manufactured by the Solvay Process Co., was 2.05 percent low in calcium oxide; however, it tested 1.69 percent above the guarantee in magnesium oxide so that its neutralizing value was but slightly impaired. The other product, of which five samples were analyzed, was put out by the Bolton Lime Works. It showed an average deficiency of calcium oxide and magnesium oxide of 3.72 percent and 1.13 percent respectively. The product is not a high grade limestone as it contains an average of 23.84 percent of insoluble matter which is of no commercial value.

Ten of the 26 brands, or about 38 percent of the hydrated lime products analyzed, showed deficiencies in either calcium oxide or magnesium oxide, or both. Seven of these deficiencies were not of a serious nature as overruns in one ingredient largely compensated for the shortages in the other. Three brands, however, were seriously low in both total oxides as well as in neutralizing value.

The H. E. Millard's Sweet Arrow Hydrated Lime had a deficiency of 5.13 percent of calcium oxide and an overrun of only .84 percent of magnesium oxide.

The New England Lime Co.'s Agricultural Hydrate (Adams) showed a defi-

[1] Assisted by H. Robert DeRose, Assistant Chemist, J. T. Howard, G. E. Taylor and C. L. Whiting, Sampling Agents.

ciency of 16.47 percent calcium oxide and an overrun of only .73 percent in magnesium oxide. Apparently this product had through exposure absorbed an unusually large amount of carbon dioxide which would result in the formation of calcium carbonate, a compound very much lower in calcium oxide than is the average hydrated or slaked lime.

The Rockland Rockport Lime Co.'s Land Lime was deficient 21.76 percent calcium oxide with an overrun of only 2.47 percent magnesium oxide. See footnote in table of analyses.

Lime Definitions

Reference is made to Massachusetts Control Bulletin No. 87, page 9, published in December, 1936, for definitions of Pulverized Limestone (fine-ground limestone) and Ground Limestone (coarse-ground limestone) as adopted by the Association of Official Agricultural Chemists of North America. The only definition applicable to lime products that has been officially adopted by the Association since 1936 is the following, which was adopted at the 1938 meeting.

Dolomite. Dolomite is a mineral composed chiefly of carbonate of magnesium and calcium in substantially unimolal (1–1.19) proportions.

Tonnage of Lime Products Sold in Massachusetts

Early in 1938 an effort was made to secure reliable statistics as to the tonnage of lime products used in Massachusetts as soil amendments during 1937. Most of the data was supplied by firms selling lime for agricultural purposes in the State. The following summary shows the results of our efforts.

	Tons Sold
Pulverized and ground limestone	34,522
Hydrated lime	5,271
Miscellaneous (caustic lime, lime ashes and shell lime)	284
Total	40,077

Explanation of Table of Analyses

Table I, "Proportion of total oxides as carbonates." The data furnished in this column are calculated from an actual determination of carbon dioxide (CO_2). Calcium or magnesium not in the form of carbonate is present either as hydrated lime (water- or air-slaked), as burned lime (caustic or unslaked), or as basic silicate. All of the products listed in this table have at some time been burned, and the proportion of oxides present as carbonates indicates to what extent the product has absorbed carbonic acid from the air.

Tables II and III, "Carbonates of calcium and magnesium." The figures in this column are exclusive of the small amounts of calcium and magnesium combined as basic silicates; these are readily soluble in mineral acid solutions but obviously should not be classed as carbonates.

Under "Mechanical analysis" the figures represent in round numbers the percentage of product that would pass the various meshed sieves mentioned.

The limestone products have been published in two groups or grades (see tables II and III) according to fineness of grinding and to conform to definitions voted by the Association of Official Agricultural Chemists at their 1936 meeting.

Tables I and II and III. "Neutralizing value expressed in terms of calcium oxide" represents the acid neutralizing value of both the magnesium and the calcium. The figures in the "percent" column are obtained by a direct titration with standard acid. The "pounds in one ton" are secured by multiplying the figures in the "percent" column by 20.

"Insoluble matter" represents material which is insoluble in dilute hydrochloric acid to which a few drops of nitric acid have been added.

The figures in parenthesis following the brand name show the number of samples collected and analyzed.

Table I. Hydrated or Slaked Lime.

Name of Manufacturer and Brand.	Calcium Oxide (CaO).		Magnesium Oxide (MgO).		Proportion of Total Oxides as Carbonates.	Neutralizing Value Expressed in Terms of Calcium Oxide.		Insoluble Matter.
	Found.	Guaranteed.	Found.	Guaranteed.		Per Cent.	Pounds in One Ton.	
Brewer & Co., Inc., 45 Arctic St., Worcester, Mass. (*a*)								
Producto Agricultural Lime (1)	78.93	60.00	6.48	1.00	1/22	85.24	1,705	3.32
Sure Crop Agricultural Hydrated Lime (3)	69.31	65.00	1.25	1.00	1/9	68.63	1,373	3.26
Snow Fluff Agricultural Hydrated Lime (1)	70.44	70.00	3.97	5.00	1/13	73.82	1,476	1.89
Green Mountain Handy Hydrate Lime (2)	70.44	65.00	2.26	1.00	1/16	72.48	1,450	1.60
Lime Kiln Ashes (1)	48.23	42.00	3.33	none	7/10	52.86	1,057*b*	9.30
G. & W. H. Corson, Inc., Plymouth Meeting, Penn.								
Corson's Prepared Lime, Agricultural Hydrate (1)	47.11	46.50	31.62	31.00	1/16	89.03	1,781	2.15
Eastern States Farmers' Exchange, Springfield, Mass.								
Agricultural Hydrated Lime (1)	70.32	70.00	1.38	1.00	1/19	70.38	1,408	1.69
Harris Lime Co., Saylesville, R. I. (*c*)								
Harris High Magnesia Agricultural Hydrated Lime (3)	51.11	50.00	21.70	22.00	1/8	78.79	1,576	3.85
A. H. Hoffman, Inc., Landisville, Penn.								
Hoffman's Hydrated Lime (4)	69.16	70.00	1.24	1.50	1/9	68.70	1,374	3.31
Hoosac Valley Lime Co., Inc., Adams, Mass.								
Adams Land Lime (1)	61.35	60.00	1.06	.50	1/3	61.69	1,234	4.29
Kelley Island Lime & Transport Co., 1122 Leader Bldg., Cleveland, Ohio								
Tiger All-Purpose Hydrated Lime (1)	48.00	47.12	33.71	34.14	1/29	92.39	1,848	.27
Lawrence Portland Cement Co., Thomaston, Maine								
Dragon Mainrock Land Lime (3)	67.07	60.00	2.76	.20	1/8	68.14	1,363	2.30
Lee Lime Corporation, Lee, Mass.								
Lee Lime Corporation Agricultural Hydrated Lime (4)	47.11	47.00	31.41	31.00	1/29	88.61	1,772	.47
Lee Lime Corporation Land Lime (3)	39.42	35.00	27.52	25.00	1/2	74.45	1,489	1.27
Agricultural Hydrated Lime (1) (*d*)	55.96	none	7.03	none	1/3	66.10	1,322	5.42

H. E. Millard, Annville, Penn.								
Sweet Arrow Hydrated Lime (1)	64.87	70.00	2.34	1.50	1/3	64.63	1,293	1.87
Clifford L. Miller, West Stockbridge, Mass.								
Monarque Agricultural Hydrated Lime (3)	67.63	60.00	5.16	4.00	1/16	72.76	1,455	1.97
New England Lime Co., Adams, Mass. (*e*)								
Nelco Agricultural Hydrated Lime (Adams) (1)	53.53	70.00	1.23	.5	17/18	52.72	1,054	3.17
Nelco Land Lime (Canaan, Conn.) (2)	41.50	35.00	28.61	25.00	1/3	77.53	1,551	1.66
Nelco Agricultural Hydrated Lime (Canaan, Conn.) (1)	46.76	47.00	31.43	31.00	1/22	87.06	1,741	1.27
Rockland-Rockport Lime Co., Inc., Rockland, Maine								
R-R Land Lime—Grade M (4)	56.98	55.00	5.43	4.00	1/4	63.93	1,279	7.60
Rockland Agricultural Hydrate (3)	51.14	45.00	22.64	23.00	1/10	79.07	1,581	2.08
R-R Land Lime Special High Magnesia	47.08	40.00	17.17	22.00	1/3	70.66	1,413	7.86
Sanilime (1)	70.85	70.00	1.08	.20	1/8	71.64	1,433	.83
R-R Land Lime—Grade C (1) (*f*)	38.24	60.00	2.97	.50	3/4	38.14	763	5.58
United States Gypsum Co., 300 West Adams St., Chicago, Ill. (*g*)								
USG Agricultural Hydrated Lime (1)	70.10	70.00	1.51	none	1/14	70.38	1,408	2.15
USG Red Top Hydrated Lime (2)	70.77	70.00	1.26	none	1/12	70.94	1,419	.63
USG Agricultural Land Lime (2)	70.87	60.00	1.57	none	1/15	70.94	1,419	1.55

a Plant at Winooski, Vt.
b The sample tested 1.98% phosphoric acid and 3.61% potassium oxide.
c Shipping point Berkeley, R. I.
d This was a small lot of high calcium builder's lime that had carbonated to the extent that it was only fit as a soil amendment. No guarantee was made.
e Plants at Adams, Mass., and Canaan, Conn.
f This sample proved to be rather complex in composition. In addition to the carbonates and hydrates of lime and magnesium, it contained 7.65% calcium sulfate, 9.27% water, 2.28% phosphoric acid, 2.23% carbonate of potash, and 1.69% iron and aluminum oxides. The presence of the phosphoric acid and potash components would indicate the product was, at least in part, lime kiln ashes.
g Plants at Farnams, Mass., and Falls Village, Conn.

Table II. Pulverized Limestone (Finely Ground Limestone)

Name of Manufacturer and Brand.	Calcium Oxide (CaO).		Magnesium Oxide (MgO).		Carbonates of Calcium and Magnesium		Neutralizing Value Expressed in Terms of Calcium Oxide		Insoluble Matter	Mechanical Analysis (Per Cent)			
	Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.	Per Cent.	Pounds In One Ton.		Finer than 100-mesh	Between 100 and 80-mesh	Between 80 and 40-mesh	Between 40 and 10-mesh
Bolton Lime Works, Bolton, Mass., R. F. D. 212													
Ground Limestone (1)	31.42	31.42	15.70	15.70	80.76	80.76	46.27	925	15.35	83.86	2.16	12.42	1.26
Ground Limestone (1)	27.70	31.42	14.16	15.70	72.48	80.76	41.78	836	24.39	77.09	2.23	10.96	9.72
Eastern States Farmers' Exchange, Springfield, Mass. (a)													
Eastern States Magnesian Limestone	30.28	29.00	20.42	20.00	96.74	93.50	57.48	1,150	2.85	80.75	3.99	12.72	2.54
Harris Lime Co., Saylesville, R. I.													
Harris Agricultural Ground Limestone (2)	34.10	34.00	15.43	14.00	93.12	89.96	54.96	1,099	5.97	77.27	2.17	9.16	11.40
Hoosac Marble Co., North Adams, Mass.													
Ground Limestone (2)	53.50	53.00	.94	.65	97.03	97.21	53.84	1,077	2.77	91.18	2.08	6.23	.51
Hoosac Valley Lime Co., Inc., Adams, Mass.													
Hoosac Agricultural Limestone (3)	51.03	50.00	.96	.50	93.08	90.00	52.72	1,054	5.07	83.69	3.74	9.81	2.76
Lawrence Portland Cement Co., Thomaston, Maine													
Dragon Mainrok Finely Pulverized High Calcium Agricultural Limestone (2)	54.17	50.00	1.38	20	96.67	95.00	54.82	1,096	1.82	99.57	.13	none	none
Dragon Mainrok Finely Pulverized Dolomitic Magnesian Agricultural Limestone (1)	30.17	25.00	20.13	15.00	90.22	70.00	54.05	1,081	7.05	99.68	.32	none	none
Lee Lime Corporation, Lee, Mass.													
Lee Lime Corp. Agricultural Pulverized Limestone (7)	29.95	30.00	20.40	20.00	96.11	93.00	56.85	1,137	3.77	78.69	3.12	11.45	3.74
Lee Lime Corp. Agricultural Pulverized Limestone (1)	30.89	30.00	21.22	20.00	95.18	93.00	58.45	1,169	2.51	81.44	3.40	12.53	2.63
Lee Lime Corp. Agricultural Pulverized Limestone (5)	29.61	30.00	20.35	20.00	95.40	93.00	56.50	1,130	4.40	82.61	3.76	10.92	2.71
Lee Lime Corp. Agricultural Tobey Pulverized Limestone (5)	38.36	30.00	12.89	5.00	93.24	64.00	54.12	1,082	5.65	90.86	1.61	5.77	1.76

Limestone Products Corporation of America, Newton, N. J.													
Lime Crest Brand Pulverized Limestone (4)	43.74	34.00	3.36	1.00	85.09	90.00	47.88	958	12.90	90.15	1.91	6.10	1.84
Clifford L. Miller, West Stockbridge, Mass.													
Monarque Agricultural Dolomite (3)	28 70	28.00	17.02	16.00	86.71	83.00	51.10	1,022	13.18	80.97	1.78	8.12	9.13
New England Lime Co., Adams, Mass. (*b*)													
Nelco Agricultural Limestone (Adams) (3)	54.68	50.00	1 13	none	96.11	89 23	55.03	1,101	1 91	100 00	none	none	none
Nelco Agricultural Ground Limestone (Canaan, Conn.) (1)	30 73	30.00	21.19	20 00	98.00	95 37	58 67	1,173	1.35	80 76	3.16	13 01	2.77
Nelco Agricultural Ground Limestone (Canaan, Conn.) (3)	30.51	30 00	21.51	20 00	97.57	95 37	58 67	1,173	1 52	80 67	3.50	12 20	3.63
Rockland-Rockport Lime Co., Inc., Rockland, Maine													
R-R Ground Limestone, Grade C (2)	52.60	50.00	1 38	none	96 71	92.00	53 77	1,075	2 20	83.02	2.80	10.06	1 12
R-R Ground Limestone, Grade M (3)	32.11	30.00	17.63	17 00	91 71	91 00	56.71	1,134	3 16	79 77	2.80	12.63	1.80
United States Gypsum Co., 300 West Adams St., Chicago, Ill. (*c*)													
USG Agricultural Limestone (1)	30.17	29 00	20 31	20 00	96 31	93 50	57 97	1,159	3.00	83.93	3.19	11.98	.60

a Plant at Falls Village, Conn.
b Plants at Adams, Mass., and Canaan, Conn.
c Plants at Farnams, Mass., and Falls Village, Conn.

Table III. Ground Limestone (Coarsely Ground Limestone)

Name of Manufacturer and Brand.	Calcium Oxide (CaO).		Magnesium Oxide (MgO).		Carbonates of Calcium and Magnesium		Neutralizing Value Expressed in Terms of Calcium Oxide		Insoluble Matter	Mechanical Analysis (Per Cent)			
	Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.	Per Cent.	Pounds In One Ton.		Finer than 100-mesh	Between 100 and 80-mesh	Between 80 and 40-mesh	Between 40 and 10-mesh
Bluepoints Co., Inc., Rhode Island Oyster Farms Co., East Providence, R. I.													
Sealshipt Brand Oyster Shell Dust (1)	45.65	45.00	1.12	.75	83.81	77.00	46.97	939	10.25	52.37	4.90	33.73	9.00
Bolton Lime Works, Bolton, Mass., R. F. D. 212													
Ground Limestone (1)	23.44	31.42	12.62	15.70	66.26	80.76	37.08	742	32 70	72.23	1.65	13.21	12.91
Ground Limestone (1)	29.42	31.42	15.25	15.70	72.34	80.76	43.04	861	20.30	56.47	3.07	17.32	23.14
Ground Limestone (1)	26.53	31.42	15.14	15.70	68.53	80.76	41 01	820	26.46	58.40	4.33	25.19	12.08
Conklin Limestone Co., Inc., Canaan, Conn.													
High Magnesium Agricultural Ground Limestone (1)	30.40	30.00	21.73	20.00	97.58	90.00	59.16	1,183	1.35	56.57	4.47	34.47	4.49
Grangers Manufacturing Co., West Stockbridge, Mass.													
Grangers Agricultural Limestone (5)	42.85	30.00	7.78	1.00	89.23	90.00	51.29	1,026	9.02	70.50	3.06	17.82	8.62
Massachusetts Lime Works, 20 James St., Medford, Mass.													
Indiana Ground Limestone (1)	53.61	53.00	.58	.50	96.88	95.00	54.55	1,091	.63	31.07	3.71	45.08	20.14
Clifford L. Miller, West Stockbridge, Mass.													
Monarque Agricultural Limestone (2)	39.14	39.00	11.15	11.00	92.96	90.00	53.00	1,060	6.82	74.15	1.51	11.11	13.23
Monarque Agricultural Dolomite (1)	30.17	28.00	16.44	16.00	86.48	83.00	51.10	1,022	12.57	73.83	1.99	8.63	15.55
D. U. Smith & Brother, Ashley Falls, Mass.													
Ashley White Dolomite—Agricultural Limestone (6)	30.73	30.00	21.47	21.00	97.56	98.00	58.81	1,176	1.25	51.13	6.44	31.37	11.06
Solvay Process Co., Syracuse, N. Y.													
Solvay Pulverized Limestone (1)	47.95	50.00	3.19	1.50	92.24	92.40	50.96	1,019	6.68	61.88	1.93	19.79	16.40

Table IV. Gypsum or Land Plaster.

Name of Manufacturer and Brand	Calcium Oxide (CaO).		Calcium Sulfate ($CaSO_4$).		Calcium and Magnesium Carbonates Found.
	Found.	Guaranteed.	Found.	Guaranteed.	
United States Gypsum Co., 300 West Adams St., Chicago, Ill. Ben Franklin Agricultural Gypsum (3)	32.64	30 00	67.51	64 50	9.98

NOTE: Moisture found, 18.36%; insoluble matter, 1.35%

L. A. Howard and G. D. Howard, Proctorsville, Vermont
Howard's Agricultural Talc

	By Fusion Percent	Soluble in strong Hydrochloric-Nitric Acid Percent	Guarantee Percent
Magnesium oxide	30.49	8.03*	31.00
Calcium oxide	2.47	1.21	–
Iron and aluminum oxides	7.04	–	–
Insoluble silica	51.28	–	–

* Guarantee of acid soluble magnesium oxide, 13.00%.

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MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

CONTROL SERIES BULLETIN NO. 98 JUNE, 1939

Nineteenth Annual Report on Eradication of Pullorum Disease in Massachusetts

By the Poultry Disease Control Laboratory

The 1938-39 testing results reported in this bulletin show further progress in pullorum-disease eradication. There was a very marked increase in the amount of testing done, and the percentage of reactors (0.34) increased slightly over the previous season. Detection of infection in flocks previously negative indicates the necessity and wisdom of annual testing. Most flock owners appreciate the value of an annual 100 percent flock testing program when it is supplemented with effective disease preventive measures.

MASSACHUSETTS STATE COLLEGE
AMHERST, MASS.

NINETEENTH ANNUAL REPORT OF PULLORUM DISEASE ERADICATION IN MASSACHUSETTS
1938-1939

By the Poultry Disease Control Laboratory[1]

INTRODUCTION

Pullorum disease is recognized as a serious problem by the poultry industry of the different countries. During the last two decades, the marked changes in the incubation of eggs and in the transporting and the brooding of chicks have resulted in greater and more rapid spread of pullorum infection. Such circumstances have led to an increased interest in the control, eradication, and prevention of the infection. An effective program for combating the disease includes the annual testing of all birds on the premises supplemented with adequate sanitary and preventive measures.

This report shows that poultrymen in Massachusetts have long recognized the importance of an effective pullorum disease eradication program. The results obtained through a nineteen-year period have convinced those engaged in poultry raising that flocks free from pullorum infection are more profitable than infected flocks. This fact expresses itself in the evidence that the successful poultrymen include in their management program annual testing of all birds on the premises and strict observance of measures which prevent the introduction of infection.

Summary of Service Rendered

Applications received	373
Applications cancelled	8
Flocks tested	365*
Number of tests	623,935**
Chickens:	
Routine	608,621
Experimental	6,584
Fowl other than chickens:	
Routine	5,033
Experimental	3,697**
Owners receiving necropsy service	37
Necropsies of reacting birds	91

*Includes 10 flocks of poultry other than chickens.
**Includes 3,565 paratyphoid tests.

At the present time, Massachusetts has more birds in officially tested non-reacting flocks than at any previous time in the nineteen-year testing period. Such progress in the establishment and identification of pullorum-clean breeding stock aids decidedly in building a more valuable and profitable poultry industry.

For the progress that has been made in pullorum-disease eradication, credit should be given to the individual flock owners and hatcherymen. It is hoped that their efforts will continue to be effective in combating the disease.

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[1]Poultry Disease Control Laboratory Staff: H. Van Roekel, Chief of Laboratory; K. L. Ellis, Assistant Veterinary Pathologist; O. S. Flint, Assistant Research Professor; Miriam K. Clarke, Research Assistant; Felicia Jewett, Laboratory Assistant. Appreciation is extended to Dr. J. B. Lentz, Head of the Department of Veterinary Science, for the administrative assistance given to the testing work.

Table 1. Distribution of Tests and Reactors by Counties and by Breeds

Breed		Barnstable	Berkshire	Bristol	Essex	Franklin	Hampden	Hampshire	Middlesex	Norfolk	Plymouth	Suffolk	Worcester	Totals	Percent Positive Tests
Rhode Island Reds	(Total tests	4,003	3,680	53,221	30,230	39,625	15,259	27,607	76,855	112,322	42,542	533	76,176	482,053	0.35
	(Positive tests	17	94	69	85	4	0	0	507	623	190	0	113	1,702	
Barred Plymouth Rocks	(Total tests	518	423	8,759	5,225	11,942	2,103	3,215	12,735	10,192	11,504	..	8,202	74,818	0.09
	(Positive tests	0	4	22	3	1	8	0	4	12	14	..	0	68	
White Plymouth Rocks	(Total tests	..	1,580	2,929	1,166	...	573	589	5,691	903	10,909	.	562	24,902	0.01
	(Positive tests	..	1	0	0	..	0	0	0	0	1	..	0	2	
White Leghorns	(Total tests	..	5,136	1,104	3,234	..	525	109	1,206	2,173	..	..	356	13,843	0.33
	(Positive tests	..	22	0	0	..	0	0	18	5	..	..	0	45	
New Hampshires	(Total tests	.	1,825	..	..	873	833	496	..	292	2,981	..	4,825	12,125	0.65
	(Positive tests	..	65	..	..	0	0	0	..	0	14	..	0	79	
Miscellaneous	(Total tests	122	280	142	283	32	1,224	333	568	1,858	2,528	..	94	7,464	2.93
	(Positive tests	0	37	0	0	0	0	0	0	0	182	..	0	219	
Total Tests		4,643	12,924	66,155	40,138	52,472	20,517	32,349	97,055	127,740	70,464	533	90,215	615,205	
Positive Tests	(Number	17	223	91	88	5	8	0	529	640	401	0	113	2,115	
	(Percent	0.37	1.73	0.14	0.22	0.01	0.04	0.00	0.55	0.50	0.57	0.00	0.13		0.34

Pullorum-disease eradication has benefited greatly from the educational work carried on by the Extension Service and other agencies. A persistent and far-reaching educational program will result in great monetary saving for the Massachusetts poultry industry.

Due credit should be given to the Massachusetts Department of Agriculture which has made possible the official recognition of "Pullorum Passed" and "Pullorum Clean" flocks. The publication of lists of flocks free from pullorum infection has served as a guide for the buyer in the purchase of pullorum-clean stock.

Distribution of Tests and Reactors

Twelve counties received testing service during the season. Table 1 gives the number of tests and reactors for each breed and each county. A new high total of tested samples (615,205) was established for the nineteen-year testing period.

The average percentage of positive tests was 0.34. Two counties, Hampshire, and Suffolk, had no reactors among their tested birds. Only one county, Berkshire, had more than one percent positive tests, while the majority of the remaining counties revealed less than one-half of one percent reactors. Norfolk, Middlesex and Worcester led in the number of tested samples. The following breeds and varieties were tested: Bantam, Barnevelder, Barred Plymouth Rock, Black Minorca, Brown Leghorn, Game birds, Light Brahma, New Hampshires, Rhode Island Red, White American, White Leghorn, White Plymouth Rock, White Wyandotte, and Cross-breeds. No reactors were detected among the Bantam, Barnevelder, Black Minorca, Game birds, and White American breeds.

Of the total number of samples tested, 560,092 were from females and 55,113 from males. Of these 0.35 and 0.24 percent respectively were positive.

Flocks Should Be Tested Annually

The effectiveness of annual testing is pointed out by results shown in Table 2. These results strongly emphasize the fact that the majority of poultrymen realize the value of annual testing in the establishment and maintenance of pullorum-clean flocks. It is understood that testing alone is only one phase of a pullorum-disease eradication and prevention program. Whether or not pullorum infection

TABLE 2. ANNUAL TESTING VERSUS SINGLE AND INTERMITTENT TESTING

Classification	Flocks	Birds	Total Tests	Positive Tests		Negative Flocks		Positive Flocks	
				Number	Percent	100% Tested	Partially Tested	100% Tested	Partially Tested
Tested for the first time	84	65,171	66,379	484	0.73	58	13	8	5
Intermittent testing	23	25,866	34,750	358	1.03	14	7	2	0
Two consecutive years	46	60,638	79,049	726	0.92	33	5	6	2
Three or more consecutive years	202	419,390	435,027	547	0.13	184	13	4	1
Totals	355	571,065	615,205	2,115	0.34	289	38	20	8

exists in a breeding flock may be ascertained through testing. A flock once free from the disease does not necessarily continue to remain free as will be discussed in another part of this report. Pullorum infection may be introduced into a flock through various channels. The introduction of infection may be more difficult to prevent through certain avenues than through others. Considering the widespread nature of the disease and the inadequate employment of disease control and prevention measures against dissemination of the infection, poultrymen cannot be assured from one year to the next that their flocks will remain free from infection.

In Table 2 are given comparative results on flocks tested for the first time, flocks tested intermittently, flocks tested for two consecutive years, and flocks tested for three or more consecutive years.

The number of flocks tested for the first time was 84, representing 66,379 tests of which 0.73 percent were positive. In this group there were 71 non-reacting flocks, representing 54,925 birds, and 58 of these consisting of 47,694 birds were 100 percent tested. Among flocks tested for the first time, there was an increase of 29 flocks and 25,586 birds over the previous season. It is encouraging to note that in this group the average percentage of infection is less than 1 percent and that most of the birds tested are found in 100 percent tested non-reacting flocks. Such results strongly indicate what can be accomplished in establishing additional pullorum-clean flocks through careful selection from a known nucleus of breeding stock free from pullorum infection such as exists in Massachusetts.

The number of flocks in the intermittent-tested group was 23, representing 34,750 tests of which 1.03 percent were positive. The number of flocks tested, birds tested, and average percentage of infection varies but little from the results of the last few years.

The flocks tested for two consecutive years numbered 46 and represented 79,049 tests of which 0.92 percent were positive. This group revealed 38 non-reacting flocks of which 33 were 100 percent tested.

The group of flocks tested for three or more consecutive years was the largest of the four groups in number of tested flocks (202), tested birds (419,390), and tests (435,027). The average percentage of infection (0.13) was the lowest. Of the total birds (571,065) tested, 73.4 percent were in the group tested for three or more consecutive years. Of the total negative flocks (327) detected, 197 or 60.2 percent were in the group tested for three or more consecutive years; and 184, representing 333,561 birds, were 100 percent tested. A large number of flocks in this group have passed a negative test for several consecutive years. Such flocks are by all means the safest sources in selecting pullorum-clean stock.

Of the total birds tested (571,065), 82.2 percent were in flocks which passed a negative test. Among the 355 flock owners who received service, 327 or 92.1 percent obtained a negative report and 309 or 87.04 percent had all the birds on the premises tested.

Twenty-eight flocks were classified as positive, representing 101,931 birds. The marked increase in the number of birds in this group is explained by a "break" in one large flock.

In Table 3 is listed the range of infection for the positive flocks. In the first-year group, the range of infection for the flocks falls in higher levels than is the case for the other groups. In comparing the percentages of positive flocks among the four groups, it is noted that those percentages for the intermittent flocks and for the flocks tested for three or more consecutive years are the lowest. The percentages of infected flocks in the first three groups are subject to fluctuation from year to year because the number of tested flocks is not very large. Few flock owners test for three consecutive years or longer without completely eliminat-

ing the infection from the premises through testing or replacements from clean stock or by a combination of both methods.

Mention should be made also of the improvement in increasing the number of 100 percent tested flocks as compared with the previous season. Flock owners are reminded again of the importance of testing all birds on the premises in order to determine the true status of the plant. Furthermore, the Massachusetts Department of Agriculture does not consider partially tested flocks for the official pullorum tested grades established by that Department.

TABLE 3. RANGE OF INFECTION IN THE POSITIVE FLOCKS

Range of Infection Percent	Flocks Tested for First Time	Flocks Tested Intermittently	Flocks Tested for Two Consecutive Years	Flocks Tested for Three or More Consecutive Years
0- 1	3		3	3
1- 2	1		1	1
2- 3	1			
3- 4	2	1	1	
4- 5				
5-10	3		2	1
10-20				
20 or more	3	1	1	
Totals	13	2	8	5
Percentage of Total Flocks Tested in Each Group	15.48	8.70	17.39	2.48

Appearance of Infection in Flocks Previously Negative

During the past year, infection was detected in ten flocks which were negative the previous season. In the majority of cases, no definite source of infection was determined. The data in Table 4 show that only three of the flocks (3, 4, 10) had been negative for more than one year.

The owners of flocks 3 and 4 could not account for any definite source of infection. Flock 3 was tested on January 16, 1939, and revealed only one reactor (pullet) from which *S. pullorum* was isolated. The owner reported that new stock had been introduced in the form of hatching eggs and baby chicks the previous spring, but the sources from which the stock was selected were regarded as free from pullorum infection. Flock 4 was tested on December 15, 1938, and revealed two strong reactors and two doubtful reacting birds. The two strong reactors (pullets) were necropsied and yielded *S. pullorum*. The owner was able to present evidence that might be only remotely responsible for the infection. On retest, both flocks were negative. These two flocks represent typical cases of "breaks" which occur very infrequently. Such cases should point out that the infection is not always introduced through custom hatching, purchase of infected stock, and contest birds, but possibly may come indirectly from used feed bags, egg crates, etc. The fact that so few birds were infected would strongly suggest such an avenue of infection.

The results in Table 4 emphasize to the buyer of pullorum-clean stock that a flock which has passed a negative test for several consecutive years is a safer

flock to purchase from than one which has passed only one negative test. These observations also point out that one must guard against infection constantly from the time eggs have been placed in the incubator, during the time the chicks are being reared, and while the adult birds are in the breeding pens. It is obvious that the importance and value of annual testing can not be overemphasized when one considers these "breaks."

TABLE 4. APPEARANCE OF INFECTION IN FLOCKS PREVIOUSLY NEGATIVE

Flock	Number of Years Negative	1938-39 Season			Explanation for Infection
		Flock Total	Number Tested	Positive Tests Percent	
1	1	4,764	4,762	7.03	Custom Hatching
		4,255	4,252*	0.73	
		4,069	4,069*	0.15	
		3,076	3,075*	0.16	
2	1	5,763	5,762	0.17	Purchase of questionable stock
3	7	2,483	2,481	0.04	Unknown
		2,292	2,292*	0.00	
4	10	6,260	6,260	0.06	Unknown
		6,332	6,330*	0.00	
5	1	60,644	60,624	0.63	Unknown
6	1	2,192	2,191	0.46	Inadequate preventive measures
		2,035	2,035*	0.00	
7	1	2,204	2,204	0.14	Inadequate preventive measures
8	1	10,906	10,904	0.10	Unknown
		2,147†	2,147*	0.00	
9	1	296	295	0.34	Unknown
10	6	4,271	4,271	0.09	Contact with untested stock

*Represents retests.
†Represents partial test.

Poultrymen will benefit greatly through continuous and adequate observance of the following control, eradication, and prevention measures:

1. All the birds on the premises should be tested each year.
2. If infection is present, the entire flock should be retested within four to six weeks until a negative report is obtained, provided the value of the birds justifies the expenditure.
3. Every reactor, regardless of its value, should be removed from the premises and sold for slaughter immediately upon receipt of the report.
4. Offal from all birds dressed for market or home consumption as well as dead birds that are not fit for consumption should be burned.
5. The poultry houses, runs, and equipment should be thoroughly cleaned and disinfected immediately after removal of reactors, using disinfectants approved by the United States Department of Agriculture. An empty pen in each house facilitates cleaning and disinfection during the winter months.

6. Birds removed from the premises to egg-laying contests, exhibitions, etc., should be held in quarantine and determined free of disease before they are readmitted into the flock.

7. Purchase of stock in the form of adults, chicks, and eggs should be from known pullorum-disease-free flocks. Consult your county agent regarding additions or replacements in your flock.

8. Eggs should not be saved for hatching until after a flock has been tested and all the infected birds removed. Early pullet testing will permit early hatching.

9. Fresh and infertile eggs from unknown or infected sources should not be fed to chickens or exposed to animals such as crows, sparrows, and skunks that may carry or spread the infection.

10. Poultrymen should not custom hatch for untested or infected flocks (including fowl other than chickens).

11. Owners of pullorum-disease-free flocks should not have hatching done where infected eggs or stock may be found.

12. Poultrymen should regard fowl other than chickens as a possible source of pullorum infection unless tested and found free from pullorum disease.

13. Poultrymen should not buy feed in bags that have been used or exposed to infection. (Such bags will be safe for further use if properly disinfected.)

14. Equipment that has been exposed to or contaminated with infective material should not be used again until it has been properly cleaned and sterilized or disinfected.

Non-Reacting and Positive Flocks Classified by Counties

Table 5 gives the number of non-reacting and positive flocks classified by counties. A total of 289 non-reacting flocks (100 percent tested), representing 440,689 birds, was identified in 12 counties. Also 38 partially tested non-reacting flocks, representing 28,445 birds, were identified. The number of birds in 100 percent tested negative flocks exceeds the previous year's total by 7,770. This gain may appear small. However, when one considers the shift this year of one large flock from the non-reacting group to the positive group, the gain in non-reacting birds among the other flocks is really significant and encouraging. The number of non-reacting, 100 percent tested flocks showed an increase of 48 over the previous season.

With these increases in pullorum-free flocks and birds from year to year, the Massachusetts poultry industry is attaining a stronger position as the eradication work progresses. As has been emphasized in previous reports, the entire poultry population of the State could be replaced from pullorum-free flocks. In the majority of instances, replacement of infected flocks by the introduction of pullorum-clean stock is a more economical and certain method of eradicating the disease than retesting. Of course, it must be understood that whatever method of eradication is employed, the flock owner must follow measures which are effective in the elimination and prevention of the disease.

The number of infected flocks listed for this season is 28, an increase of 6 over the previous season. No infected flocks were detected in two counties (Hampshire and Suffolk), and only one infected flock each in Barnstable, Franklin, Hampden, and Worcester counties.

Owners of infected flocks are encouraged to discuss their pullorum disease problems with the testing agency so that plans for possible eradication of the disease may be adopted. Eradication of pullorum disease from a flock, regardless of size, can be accomplished provided a suitable program is adopted and

followed. The flock owner must realize that the burden of responsibility is his and that the details in eradication are important and must be observed if success is to be attained.

TABLE 5. NON-REACTING AND POSITIVE FLOCKS CLASSIFIED BY COUNTIES

County	100% Tested		Partially Tested		Total	
	Flocks	Birds	Flocks	Birds	Flocks	Birds
	Non-Reacting Flocks					
Barnstable	2	3,390	1	649	3	4,039
Berkshire	9	9,377	—	—	9	9,377
Bristol	34	56,471	3	2,537	37	59,008
Essex	23	30,563	4	3,533	27	34,096
Franklin	33	42,683	3	3,164	36	45,847
Hampden	19	19,021	2	799	21	19,820
Hampshire	26	29,605	5	2,744	31	32,349
Middlesex	44	69,295	7	3,432	51	72,727
Norfolk	23	49,290	6	5,490	29	54,780
Plymouth	24	46,618	3	2,950	27	49,568
Suffolk	1	533	—	—	1	533
Worcester	51	83,843	4	3,147	55	86,990
Totals	289	440,689	38	28,445	327	469,134
	Positive Flocks					
Barnstable	1	604	—	—	1	604
Berkshire	4	2,344	2	291	6	2,635
Bristol	3	5,169	2	1,217	5	6,386
Essex	1	5,762	2	280	3	6,042
Franklin	1	295	—	—	1	295
Hampden	1	697	—	—	1	697
Middlesex	4	6,498	—	—	4	6,498
Norfolk	3	65,450	1	5,361	4	70,811
Plymouth	1	4,762	1	400	2	5,162
Worcester	1	2,801	—	—	1	2,801
Totals	20	94,382	8	7,549	28	101,931

Comparison of 1937-38 and 1938-39 Testing

Table 6 gives a comparison of the 1937-38 and 1938-39 testing results. Nine counties showed an increase in the number of tested flocks and 11 counties had an increase in tested birds. The average percentages of positive tests increased in 6 counties, decreased in 3, and remained unchanged in 2. One county had no testing the previous season. The number of non-reacting flocks increased in 9 counties.

For the State as a whole, increases were observed in tested flocks (47), tested birds (90,838), tests (117,436), and non-reacting flocks (41). The average percentage of infection increased from 0.17 to 0.34.

TABLE 6. COMPARISON OF 1937-38 AND 1938-39 TESTING

County	Flocks	Birds	Tests	Positive Tests Percent	Non-Reacting Flocks
		1937-38 Season			
Barnstable	4	3,685	3,685	0.00	4
Berkshire	11	12,019	12,722	1.73	6
Bristol	33	54,358	59,377	0.14	31
Essex	30	31,244	31,658	0.03	30
Franklin	28	38,514	40,052	0.16	26
Hampden	20	16,077	16,111	0.08	19
Hampshire	21	20,347	20,635	0.04	21
Middlesex	53	71,895	71,899	0.33	50
Norfolk	31	119,440	123,833	0.12	27
Plymouth	29	41,982	41,997	0.07	28
Worcester	48	70,666	75,800	0.05	44
Totals	308	480,227	497,769	0.17	286
		1938-39 Season			
Barnstable	4	4,643	4,643	0.37	3
Berkshire	15	12,012	12,924	1.73	9
Bristol	42	65,394	66,155	0.14	37
Essex	30	40,138	40,138	0.22	27
Franklin	37	46,142	52,472	0.01	36
Hampden	22	20,517	20,517	0.04	21
Hampshire	31	32,349	32,349	0.00	31
Middlesex	55	79,225	97,055	0.55	51
Norfolk	33	125,591	127,740	0.50	29
Plymouth	29	54,730	70,464	0.57	27
Suffolk	1	533	533	0.00	1
Worcester	56	89,791	90,215	0.13	55
Totals	355	571,065	615,205	0.34	327

Testing of Fowl Other Than Chickens

During the past year, 5,144 turkeys (4,684 females and 460 males) and 21 pheasants (20 females and 1 male) were tested. No reactors were detected.

Since it is recognized that pullorum disease may become established in other species of fowl, poultrymen should be mindful of this fact in the control, eradication, and prevention of the disease. Owners of breeding flocks should test all birds on the premises, including fowl other than chickens. Custom and commercial hatcheries should not incubate eggs from fowl other than chickens with pullorum-free chicken eggs unless such fowl have been tested and found free from pullorum infection.

Nineteen-Year Testing Period Shows Progress in Eradication

Table 7 shows testing data for a nineteen-year period. The marked increase in the volume of testing during this period and the progress made in reducing the average percentage of infection are worthy of note. The outstanding achievement, however, is the increase in the percentage of total birds which exist in non-reacting flocks (9.77 percent to 82.15 percent).

TABLE 7. NINETEEN-YEAR PULLORUM DISEASE TESTING SUMMARY

Season	Flocks	Birds	Total Tests	Positive Tests Percent	Non-reacting Flocks	Birds in Non-reacting Flocks Number	Birds in Non-reacting Flocks Percent
1920–21	108	24,718	24,718	12.50	25	2,414	9.77
1921–22	110	29,875	29,875	12.65	27	4,032	13.50
1922–23	121	33,602	33,602	7.60	29	5,400	16.07
1923–24	139	59,635	59,635	6.53	38	11,082	18.58
1924–25	156	66,503	66,503	2.94	79	25,390	38.18
1925–26	201	67,919	67,919	2.31	124	33,615	49.49
1926–27	249	127,327	127,327	4.03	114	40,269	31.63
1927–28	321	190,658	232,091	6.52*	138	80,829	42.39
1928–29	413	254,512	304,092	4.25*	228	153,334	60.25
1929–30	460	331,314	386,098	2.17	309	203,038	66.97
1930–31	447	356,810	402,983	1.47	328	267,229	74.89
1931–32	455	377,191	420,861	0.90	355	298,534	79.15
1932–33	335	296,093	300,714	0.47	276	238,074	80.41
1933–34	262	263,241	284,848	0.53	229	212,782	80.83
1934–35	244	281,124	301,887	0.39	213	251,778	89.56
1935–36	252	329,659	344,081	0.30	230	315,215	95.95
1936–37	307	448,519	461,762	0.37	281	424,431	94.63
1937–38	308	480,227	497,769	0.17	286	457,466	95.26
1938–39	355	571,065	615,205	0.34	327	469,134	82.15

*Based on total birds tested: 1927–28, 190,658 birds; 1928–29, 254,512 birds.

Comments and Suggestions

A critical study of the testing results for the past year suggests the following items that should receive the attention of the Massachusetts poultry industry.

1. *Annual testing* — Among the 308 flocks tested during the 1937-38 season, 65 were not tested this past season. The majority of these flock owners discontinue the testing for one or two years and sometimes longer. Such a practice is designated as intermittent testing. The testing results of several years show that intermittent-tested flocks are apt to show a higher flock incidence of infection than flocks tested annually. In consideration of the fact that flocks once free of the disease do occasionally become re-infected through obscure channels or through gross mismanagement practices, annual testing is strongly advocated to prevent the infection from becoming well established in such a flock. Furthermore, the purchasers of pullorum-free stock cannot buy with the same assurance from a flock not tested for two or three years as they can from a flock tested within a year of the date of sale, even though both flocks were negative on the last test. The true status of a flock can be determined only through testing, and the reliance on the value of a test should become increasingly less the greater the interval becomes between the date of the test and date of sale of stock from the flock.

2. *Testing all birds on the premises* — Each year some poultrymen test only part of the birds on the premises. In a few instances such a practice has apparently been successful in determining the true status of the flock. However, there is no definite assurance, when a negative test is obtained with a partial flock test, that the untested portion of the flock is also negative. Regardless of the purpose for which untested birds may be retained, there is always the possibility of the spread of infection from untested to tested birds by means of the caretaker, equipment, feed, litter, and even cohabitation of tested and un-

tested birds. Furthermore, official recognition is not given to partially tested non-reacting flocks by the Massachusetts Department of Agriculture. Flock owners who test all birds on the premises, including fowl other than chickens, follow a measure free of speculation.

3. *Negative flock "breaks"* — The appearance of infection in previously non-reacting flocks is a matter of great concern to the flock owner as well as to the testing agency. While the number of "breaks" is not great from year to year, this problem is a serious one to the flock owner whose flock becomes re-infected. The elimination of pullorum disease from a previously non-reacting flock is more expensive than from an infected flock not previously negative, because in addition to the cost of eliminating the infection the owner also suffers the loss of his pullorum-free flock rating, which definitely affects his sales. Owners of breeding flocks should recognize all the possible avenues through which pullorum infection may be introduced and exercise effective precautions against the introduction of the disease. Vigilance against pullorum disease should be practiced the entire year.

4. *Retesting and replacement of infected flocks* — In the eradication of infection from a flock the owner can select one of several methods or even a combination of methods. The elimination of the disease through retesting may be very expensive and is recommended only when a flock represents valuable breeding stock and the income from the operation of the plant justifies the expenditure for retesting.

Owners of infected flocks apparently favor the eradication of the disease from the premises through replacement with pullorum-clean stock, rather than through retesting. Whatever procedure is adopted, the owner should remember that a sound program has many details which must be conscientiously observed in order to attain success in eliminating the disease. The testing agency is glad to cooperate with owners of infected flocks who wish to draw up a program for eradication.

5. *Pullorum-disease eradication requires education* — The value of pullorum-disease eradication is recognized by the poultry industry. However, progress in eradication can be greatly expedited by means of effective and far-reaching education. With a constant change in flock owners in this State from year to year, the need for education continues. Various agencies (including flock owners, county poultry associations, county extension services, etc.) through cooperative effort could sponsor a very effective educational program which would result in a great monetary saving to the Massachusetts Poultry Industry. Considering the progress that has been made in the establishment of pullorum-free flocks, every effort should be exercised to use this pullorum-free stock to the fullest extent to bring about further progress in eradication and to serve the poultry industry in the maximum capacity. Official lists of pullorum-free flocks can be obtained from State agencies. Such lists serve as a helpful guide in the purchase of stock and in selecting flocks for custom or commercial hatching.

6. *Official recognition of pullorum free flocks* — Flock owners whose flocks may be eligible for the official grades "pullorum passed" and "pullorum clean" should apply to the Massachusetts Department of Agriculture, State House, Boston, for official recognition. Records show that many owners whose flocks are eligible for either of the two grades have failed to apply to the Massachusetts Department of Agriculture for the listing of their flocks.

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Inspection of Commercial Feedstuffs

By Philip H. Smith

This is the forty-fifth report of feeding stuffs inspection and presents the results of analysis of 1,942 samples of feeding stuffs intended for livestock and poultry consumption, collected during the year ending September 1, 1939.

MASSACHUSETTS STATE COLLEGE

AMHERST, MASS.

INSPECTION OF COMMERCIAL FEEDSTUFFS

By Philip H. Smith[1]

This, the forty-fifth report concerning the inspection of commercial feedstuffs, covers the examination of some 1,900 samples of feedstuffs found by inspectors on the Massachusetts markets. In all, 962 brands are represented.

The report simply covers the examination of these products in relation to the requirements as laid down in the statute. It does not take cognizance of many other factors pertaining to feeds which should be considered in deciding whether they measure up to what is known as quality. The foregoing statement does not imply, however, that laws as they now exist have not had a decided effect in holding in check adulteration and fraud.

If we are to truly evaluate a feed, more should be known than its content of crude protein, fat, and fiber. Protein is a complex substance whose general make-up depends upon the source from which it is derived. When certain amino acids, which go to make up the protein molecule, are lacking, the feed in which the protein is found will not fulfil its function as a component of a well-balanced ration. Fat as ordinarily determined contains chlorophyl (the green coloring matter of growing plants) and waxes, in addition to true fat or oil. These cannot all be considered as of equal food value. Fiber is a general term including all cellulose-like constituents. If the fiber present is true cellulose it is of considerable food value. Where the fiber contains an excessive amount of lignin it is less valuable. Thought should be given to the kind of mineral elements which a feed contains. The ash or mineral part of a feed as ordinarily determined may consist almost entirely of silica, or it may contain appreciable amounts of the more valuable elements, such as phosphorus and calcium. Research has also developed the fact that the complete absence of certain elements ordinarily present in minute quantities will give rise to functional disorders. Manganese in poultry feeds, the lack of which may cause slipped tendons in chicks, is an example.

Two physical factors which have an effect upon a feed are length of storage and heat. Alfalfa hay improperly stored loses much of its vitamin A potency. There is a certain danger in over-heating fish and meat by-products in drying, while soybean meal is apparently benefited by some heat during or after the extraction process.

Provision should be made in the statute for guarantees other than protein, fat and fiber, where such guarantees would be essential in fixing the value of a feed. The value of molasess lies in its sugar content: the protein and fat content are negligible. A sugar and water guarantee would fully indicate the quality of molasses. The various fish oils used entirely for their vitamin content should carry a guarantee of vitamin potency.

It is at least debatable whether the present feed law should not be revised so as to be more flexible in its operation and cover points not included in the present act.

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[1]The following staff members assisted in the inspection: Albert F. Spelman, John W. Kuzmeski, and Leo V. Crowley, chemists; Frederick A. McLaughlin, microscopist; James T. Howard, inspector Cora B. Grover, clerk.

During the period covered by this bulletin especial attention has been paid to ground oats and oat products. While Federal grades for whole oats may be of value in the grain markets, they lend considerable confusion to the evaluating of ground oat products. Under the standards oats may contain as low as 80 per cent of sound cultivated oats. Feed oats and mixed feed oats may contain as little as 30 per cent. The propriety of designating a mixture containing less than 50 per cent of oats as oats, even with a qualifying term, can be seriously questioned.

In some instances oats of any grade when ground are designated as pure ground oats. Feeding oatmeal, supposedly a pure ground oat groat, has been found not only as a pure product but also made from a No. 4 oat which may contain as little as 80 per cent of oats. There has also been found quite generally distributed a so-called feeding oatmeal which contained not only a liberal amount of barley but rice and tapioca waste as well. In the latter instance through the cooperation of the Federal Food and Drug Administration several carloads were placed under seizure and the shipper prosecuted in the Federal Courts.

Included in the tables are the analyses of a number of dog foods. While the Massachusetts statute does not cover the inspection of dog foods, samples collected by our inspectors are reported as a matter of general interest.

The Feeding Stuffs Act has been amended by the General Court to include the following paragraph.

AN ACT FURTHER REGULATING THE CONTENTS OF TAGS OR LABELS ON CERTAIN PACKAGES, LOTS OR PARCELS OF COMMERCIAL FEEDING STUFF.

Be it enacted, etc., as follows:

Section two hundred and twenty-five of chapter ninety-four of the General Laws, as appearing in the Tercentenary Edition, is hereby amended by adding at the end the following new paragraph: —

If such a tag or label contains any claim of one or more dietary factors other than those herein specified, such tag or label shall bear a legible and plainly printed statement in the English language guaranteeing such claim.

Approved March 15, 1939.

Summary of Analyses

Season of 1938-1939

	Samples	Brands	Manufacturers
Alfalfa Products			
Alfalfa Meal	12	11	8
Alfalfa Leaf Meal	9	5	5
Alfalfa Stem Meal	1	1	1
Animal and Fish Products			
Bone Meal	5	2	2
Fish Meal	25	13	11
Meat Scrap	32	18	8
Milk Powder	16	10	10
Brewers and Distillers By-Products			
Brewers Grains	16	8	8
Distillers Grains	16	8	8
Malt Sprouts	3	3	3
Cereal Meals			
Barley Meal	4	—	—
Corn Meal	24	—	—
Ground Oats	43	—	—
Feeding Oatmeal	9	7	7
Provender (Corn and Oats)	15	—	—
Corn Products			
Gluten Meal	8	2	2
Gluten Feed	24	9	7
Hominy Feed	23	10	10
Miscellaneous Mill Residues			
Beet Pulp	5	2	2
Oat Feed	5	3	1
Rye Feed	2	1	1
Unclassified	7	6	5
Oil Cake Meals			
Soy Bean Meal	22	12	12
Cottonseed Meal	31	10	9
Linseed Meal	16	11	5
Miscellaneous Oil Cakes	3	3	3
Wheat Products			
Red Dog Flour	9	4	3
Flour Middlings	9	8	8
Standard Middlings	19	13	13
Wheat Mixed Feed	29	16	16
Wheat Bran	64	23	21
Mixtures for Animals			
Calf Meals	23	12	11
Dairy Feeds	447	200	64
Dog Foods	18	18	14
Fitting Rations	39	20	18
Goat Feeds	3	2	2
Hog Feeds	21	15	13
Molasses and Horse Feeds	124	54	36
Rabbit Feeds	11	8	7
Stock Feeds	44	17	15
Mixtures for Poultry			
Chick Growing and Starting Feeds	209	121	55
Chick Scratch Feeds	21	18	17
Coarse Scratch Feeds	34	30	26
Duck Feeds	6	6	3
Broiler and Fattening Feeds	53	32	23
Laying Mashes	314	145	76
Turkey Feeds	47	32	19
Unclassified	22	13	13
Totals	1,942	962	—

Complete Average Analyses of Feeds Collected (Per Cent)

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Albers Bros. Milling Co.									
1	Calf Manna	12.1	27.5	25.0	4.1	4.0	47.7	2.1	5.0	6.5
	E. T. Allen Co.									
1	Empire 41% Protein Cottonseed Meal	8.1	41.3	41.0	5.6	5.5	28.0	11.8	13.0	5.2
	Allied Mills, Inc.									
2	Brewers' Dried Grains	6.9	30.8	24.0	6.2	5.0	39.1	13.4	18.0	3.6
4	Economy 20% Dairy Feed	12.3	22.6	20.0	4.2	3.5	45.9	7.7	11.0	7.3
3	Empire 20% Dairy Ration	12.5	21.4	20.0	3.8	3.0	46.8	7.6	12.0	7.9
2	Empire 16½% Dairy Feed	12.2	19.2	16.5	3.6	3.0	49.7	8.2	12.0	7.1
2	Empire Egg Mash with Sardine Oil	12.1	19.6	18.0	4.6	3.5	50.4	6.6	8.0	6.7
2	June Pasture (Alfalfa Meal & Beet Molasses)	15.5	12.0	10.0	0.9	0.5	45.3	16.5	21.0	9.8
1	Super Soy[1]	9.1	37.1	37.0	5.0	4.5	32.5	5.1	6.5	11.2
3	Wayne All Mash Laying Ration	11.4	16.9	15.0	4.6	4.0	54.5	5.8	8.0	6.8
4	Wayne-Amco 24% Dairy Ration	12.2	26.2	24.0	4.5	4.0	42.9	6.7	9.0	7.5
5	Wayne-Amco 20% Dairy Ration	11.7	21.8	20.0	5.0	4.0	46.6	7.8	9.0	7.1
2	Wayne-Amco 16% Dairy Ration	12.9	17.4	16.0	4.1	3.5	51.1	7.5	9.0	7.0
2	Wayne Calf Meal	11.0	27.0	24.0	5.0	4.0	43.5	6.0	7.0	7.5
4	Wayne Chick & Broiler Ration	11.2	20.1	18.0	5.2	3.5	51.0	5.4	8.0	7.1
2	Wayne Chick Starter	11.8	18.4	17.0	4.4	4.0	52.3	5.4	7.0	7.7
1	Wayne Chick Feed	14.4	11.6	9.0	4.3	2.0	66.5	1.3	4.0	1.9
1	Wayne Dog Food Blox	9.5	26.9	25.0	4.5	4.0	46.0	3.8	5.0	9.3
4	Wayne Egg & Breeder Mash	11.6	20.2	20.0	4.8	3.5	49.8	5.9	8.0	7.7
1	Wayne Fitting Ration	14.1	13.4	12.0	3.5	3.5	55.3	6.7	9.0	7.0
2	Wayne Flushing Mash	10.5	21.4	20.0	3.6	3.0	52.0	3.7	6.0	8.8
3	Wayne Growing Mash	12.1	16.8	16.0	4.6	3.5	54.7	5.3	7.0	6.5
1	Wayne Hog Supplement	10.8	39.4	40.0	5.2	4.5	26.3	5.4	7.0	12.9
3	Wayne Horse Feed	13.7	10.2	9.5	2.9	3.0	65.6	5.1	8.0	2.5
1	Wayne Mash Concentrate	8.2	35.7	32.0	5.1	3.5	30.6	5.6	8.0	14.8
2	Wayne 26% Mash Supplement	11.4	27.0	26.0	4.6	3.5	37.0	7.2	10.0	12.8
2	Wayne Pork Maker	11.8	15.4	14.0	4.2	3.5	57.1	5.5	7.0	6.0
1	Wayne Poultry Fattener	12.4	15.3	13.5	4.4	3.5	58.9	6.0	8.0	3.0
1	Wayne Rabbit Feed	10.8	14.7	13.0	3.1	3.0	57.3	8.0	11.0	6.1
2	Wayne Turkey Growing Mash	11.0	21.1	20.0	4.7	3.5	49.5	5.5	8.0	8.2
1	Wayne Turkey Starting Mash	9.7	26.1	25.0	5.1	4.0	41.7	5.3	8.0	12.1

[1]Soybean meal with added minerals.

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	American Maize-Products Co.									
5	Cream of Corn Gluten Feed	11.1	26.7	25.0	3.5	2.0	45.0	6.7	8.5	7.0
1	Soy Bean Oil Meal	10.7	43.1	41.0	4.3	4.5	31.5	5.1	7.0	5.3
	A. P. Ames Co.									
2	Ames Complete Cycle Ration	12.1	16.9	16.0	4.8	4.0	53.0	5.7	6.0	7.5
1	Ames Complete Starting & Broiler Ration	10.5	19.5	17.5	4.4	4.0	52.5	4.8	7.0	8.3
2	Ames Egg Mash	11.1	20.9	20.0	5.5	4.0	46.1	5.2	7.0	11.2
2	Ames 20% Milk Maker	11.7	21.2	20.0	4.0	4.0	47.8	8.0	10.0	7.3
1	Ames Starter and Broiler Ration	12.8	19.3	17.5	4.4	4.0	48.5	5.2	7.0	9.8
	Apothecaries Hall Co.									
2	Japanese Sardine Meal[2]	8.8	60.1	55.0	7.5	—	—	—	—	14.9
	Arcady Farms Milling Co.									
3	Arcady 24% Open Formula Production Ration	11.8	24.7	24.0	4.1	4.0	42.2	7.7	9.0	9.5
1	Arcady 20% Open Formula Production Ration	13.0	20.6	20.0	3.9	4.0	43.7	8.9	9.0	9.9
1	Arcady Sweet 16 Dairy Feed	14.1	16.1	16.0	2.7	3.5	45.9	10.5	12.5	10.7
1	Arcady Wonder Growing Mash	11.4	18.1	17.0	4.3	4.0	52.3	5.1	7.0	8.8
1	Arcady Wonder Laying Mash	12.2	21.1	20.0	4.5	4.0	47.5	4.9	7.0	9.8
1	Arcady Wonder Turkey Growing Mash	12.2	24.5	22.0	4.6	4.5	46.9	3.4	6.0	8.4
1	Sunkist Egg Mash	10.3	20.6	20.0	4.1	4.0	49.7	6.7	8.0	8.6
1	Wonderfat Station Feed	12.1	15.8	12.5	6.6	4.5	55.6	5.5	6.0	4.4
	Archer-Daniels-Midland Co.									
2	Dairyland Dried Skim Milk[3]	7.2	33.5	32.0	1.2	0.5				7.9
2	34 Per Cent Protein Old Process Linseed Oil Meal	9.9	34.6	34.0	4.7	4.5	37.8	6.9	9.0	6.1
1	44 Per Cent Protein New Process Soy Bean Oil Meal	11.7	46.7	44.0	0.5	0.5	30.9	4.9	7.0	5.3
	Ashcraft-Wilkinson Co.									
6	Cow-Eta Brand 41% Cottonseed Meal	7.8	41.7	41.0	6.1	5.0	28.6	9.3	13.0	6.5
1	Cow-Eta Brand 36% Prime Quality Cottonseed Meal	8.6	37.6	36.0	6.3	4.5	31.9	9.1	16.0	6.5
2	"Texsun" Kuder Citrus Pulp	11.9	6.5	6.0	2.3	4.8	63.5	10.4	10.5	5.4

	Atkinson Milling Co.									
2	Atkinson's Wheat Bran with Screenings	13.0	15.8	14.0	4.0	4.0	50.7	9.7	12.0	6.8
2	Atkinson's Wheat Standard Middlings with Screenings	12.7	18.7	15.0	5.0	4.0	51.4	7.1	9.5	5.1
	W. E. Atkinson Co.									
2	Weaco Laying Mash	11.4	20.6	20.0	4.6	4.0	49.1	5.1	7.0	9.2
	Atlantic Fish By-Products Co.									
2	Phoenix Fish Meal[4]	8.4	54.2	55.0	13.6	4.0	—	—	—	20.7
	B. & B. Dairy Co., Inc.									
1	Buell-Boston Dried Skim Milk[5]	5.7	34.8	33.0	0.8	0.2	—	—	—	8.1
	E. W. Bailey & Co.									
1	Bailey's 20% Special	12.2	19.7	20.0	3.7	3.5	48.4	8.3	9.0	7.7
1	Bailey's Sweetened Fitting Ration	12.0	15.4	14.0	4.7	4.0	54.4	6.9	9.0	6.6
2	Capital Dairy Ration	12.3	23.7	24.0	4.2	4.5	44.8	6.7	9.0	8.3
1	Favorite Dairy Ration	12.5	20.3	20.0	4.4	4.0	47.9	6.6	7.5	8.3
1	Pennant Chick Starter	11.9	15.9	17.0	3.8	5.0	54.5	6.2	5.0	7.7
1	Pennant Fine Chick Feed	14.2	11.2	10.0	2.4	3.0	70.0	1.2	3.0	1.0
1	Pennant Growing Feed	11.7	15.7	15.0	4.1	5.0	53.8	6.6	5.0	8.1
1	Pennant Horse Feed	14.8	11.3	10.75	3.6	3.5	61.6	4.8	6.5	3.9
1	Pennant Laying Mash	10.5	20.6	20.0	4.7	5.0	45.0	7.1	6.0	12.1
2	Pennant Stock Feed	11.9	11.0	9.5	5.2	4.0	58.1	8.3	9.5	5.5
	Barber & Bennett, Inc.									
1	Double Value 24% Dairy Feed	11.8	22.5	24.0	4.1	4.0	47.9	6.6	10.0	7.1
3	Double Value 20% Dairy Feed	12.9	21.1	20.0	3.9	4.0	48.7	6.5	10.0	6.9
1	Double Value Laying Mash	11.9	20.4	20.0	5.0	4.0	48.9	5.6	7.0	8.2
1	Fort Orange Broiler Mash	12.2	19.1	18.0	4.7	4.0	51.6	4.6	7.0	7.8
1	Fort Orange Brand Calf Meal	11.8	20.6	19.0	4.5	4.0	54.0	3.6	3.5	5.5
1	Fort Orange Brand Chic-Razer Mash	12.4	18.2	17.5	4.9	4.0	53.1	4.5	6.0	6.9
1	Fort Orange Brand 32% Dairy Feed	11.7	33.2	32.0	4.2	4.0	37.2	5.5	8.5	8.2
1	Fort Orange Brand 24% Dairy Feed	12.2	25.7	24.0	3.9	4.0	44.4	7.2	9.0	6.6
1	Fort Orange Brand 20% Dairy Feed	13.2	22.2	20.0	3.7	4.0	47.7	7.0	8.5	6.2
2	Fort Orange Brand 16% Dairy Feed	12.0	16.0	16.0	3.4	4.0	57.5	5.7	8.5	5.4
1	Fort Orange 12% Fitting and Calf Grain Ration	14.0	14.1	12.0	3.2	3.5	55.7	6.3	8.0	6.2
1	Fort Orange Brand Golden Test Ration	13.3	20.2	18.0	4.5	4.5	50.5	6.4	8.5	5.1
1	Fort Orange Brand Growing Mash	11.1	18.2	17.5	4.9	4.0	53.3	4.8	6.5	7.7
2	Fort Orange Brand Horse Feed	13.9	11.9	9.0	3.5	3.0	61.3	5.3	10.0	4.1
1	Fort Orange Brand Laying Mash	12.3	19.4	19.0	4.8	4.0	50.7	4.4	7.0	8.4
2	Fort Orange Brand Pig and Hog Feed	12.2	15.8	15.0	4.2	3.5	57.1	5.2	6.5	5.5

[2]Phosphoric acid 6.3 [3]Lactose 50.2 [4]Phosphoric acid 7.7 [5]Lactose 50.6

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Barber & Bennett, Inc.—Concluded.									
1	Fort Orange Brand Turkey Grower	11.2	22.1	20.0	4.8	3.5	49.9	4.8	6.0	7.2
1	Fort Orange Brand Turkey Starter	11.2	23.7	24.0	5.3	3.5	47.8	4.4	6.0	7.6
	Bartlett Frazier Co.									
1	Wheat Bran with Screenings	11.1	15.2	14.5	4.1	3.5	53.6	9.1	11.0	6.9
	Battle Creek Dog Food Co.									
1	Millers Kibbles (Dog Food)	10.8	18.7	16.0	1.2	1.0	63.0	0.7	2.0	5.6
1	Millers Ration for Dogs	7.9	18.6	15.0	2.4	1.0	60.1	1.0	3.5	10.0
	Beacon Milling Co., Inc.									
1	Auburn Dairy Feed (1938 registration)	12.6	20.7	20.0	3.4	4.0	49.9	6.3	10.0	7.1
1	Auburn Dairy Feed	13.7	20.7	20.0	3.8	3.75	48.2	6.8	10.0	6.8
4	Beacon Sweet "24"	12.2	24.4	24.0	4.3	4.0	45.3	6.6	9.0	7.2
1	Beacon "20"	12.7	19.6	20.0	4.4	4.5	49.2	7.2	9.0	6.9
2	Beacon Broiler Feed	11.4	19.7	18.5	5.3	4.0	52.1	4.5	7.0	7.0
1	Beacon Calf Grain Ration	13.1	16.1	14.0	4.3	4.0	53.2	7.2	10.0	6.1
2	Beacon's Cayuga Horse Feed	14.7	12.1	10.0	3.2	2.5	59.7	6.2	9.0	4.1
2	Beacon C-C Pellets	12.9	19.0	18.0	5.4	1.0	54.9	3.0	5.0	4.8
1	Beacon Complete Starting Ration	12.1	18.3	17.5	5.3	4.0	52.4	4.4	6.0	7.5
1	Beacon Comprest Rabbit Feed	13.3	18.3	18.0	4.8	3.0	52.4	5.9	7.0	5.3
1	Beacon Duck Starting Pellets	10.9	18.9	17.0	3.8	4.5	54.5	5.1	6.0	6.8
1	Beacon "22" Egg Mash	10.8	23.0	22.0	5.8	4.5	44.9	5.3	7.5	10.2
3	Beacon Fleshing Pellets	10.9	17.3	15.0	4.4	3.5	56.1	6.2	6.5	5.1
3	Beacon "18" Growing Mash	11.0	18.8	18.0	5.2	4.0	50.6	5.8	7.5	8.6
1	Beacon "16" Growing Mash	11.4	16.2	16.0	5.0	4.0	53.0	5.6	7.5	8.8
3	Beacon "20" Laying Mash	11.7	20.8	20.0	5.9	4.0	47.1	5.4	7.5	9.1
1	Beacon Pheasant Starter & Grower Feed	10.4	28.0	26.0	5.8	4.0	40.5	4.6	6.0	10.7
4	Beacon Test Cow Ration	12.6	19.3	18.0	4.9	4.75	50.5	6.6	9.0	6.1
2	Beacon Turkey Fitting Ration	14.5	11.5	10.0	3.3	3.0	61.8	5.3	9.0	3.6
1	Beacon Turkey Growing Feed	10.5	22.1	20.0	5.6	4.0	48.1	5.8	7.0	7.9
	Berkshire Coal & Grain Co., Inc.									
3	Berkshire Hills Sweet Dairy Feed	14.2	19.6	20.0	3.5	4.5	48.9	6.7	8.0	7.1

2	Green Mountain Dairy Ration	11.0	23.6	23.0	4.4	5.0	46.7	7.7	10.0	6.8
3	Green Mountain Laying Mash	11.7	19.0	19.0	5.1	4.0	49.6	5.5	8.0	9.1
2	Greylock 20% Molasses Ration	14.3	18.2	20.0	3.4	4.0	49.8	7.5	12.0	6.8
	Blatchford Calf Meal Co.									
1	Blatchford's Calf Meal	10.6	26.8	25.0	4.5	5.0	43.1	4.8	5.5	10.2
	Borden Co.									
2	"Flaydry" Lactoflavin Supplement	8.2	25.1	18.0	1.7	0.5	54.7	2.0	2.75	8.3
	Borden Grain Co.									
2	Borden's Dairy Feed	10.4	23.3	22.0	5.1	4.5	47.2	5.7	9.0	8.3
2	Borden's Laying Mash	10.8	18.7	19.0	5.3	4.5	49.2	6.7	7.0	9.3
1	Borden's Starter and Growing Feed	10.2	19.5	17.0	5.1	4.0	50.8	4.7	6.0	9.7
	C. W. Brister & Son									
1	Prize Mixed Feed	14.1	13.2	14.0	4.0	3.5	58.3	6.1	9.0	4.3
	George B. Brown Corporation									
2	Brown's Dairy Feed	10.8	22.2	20.0	4.3	4.0	47.9	9.1	12.0	5.7
2	Brown's Egg Mash	11.9	17.7	18.0	4.6	5.0	49.1	7.2	10.0	9.5
	Buckeye Cotton Oil Co									
1	Buckeye 41% Protein Cottonseed Meal	7.1	41.7	41.0	6.0	5.0	29.0	9.6	13.0	6.6
	C. W. Burckhalter, Inc.									
2	Burck-Brand Powdered Skim Milk[6]	4.6	37.0	32.0	1.3	0.75	—	—	—	8.2
	A. B. Caple Co.									
1	20% Capex Dehydrated Alfalfa Leaf Meal	7.1	21.1	20.0	2.8	2.0	39.5	19.9	18.0	9.6
2	Alfalfa Stem Meal	9.8	12.0	9.0	1.4	0.8	34.7	36.2	40.0	5.9
	Center Milk Products Co.									
1	Center Dried Skim Milk[7]	6.8	32.9	33.0	1.0	1.0	—	—	—	8.1
	Central Soya Co.									
1	Central Soybean Oil Meal	11.5	43.2	41.0	4.4	4.5	30.4	5.1	7.0	5.4
	Chappel Bros., Inc.									
1	Chappel's Ken-L Biscuit (Dog) Kibbled	7.3	19.4	20.0	3.1	2.0	63.5	1.5	2.0	5.2
1	Chappel's Ken L Worth Fresh Meat Dog Biscuit	6.9	19.1	20.0	3.7	2.0	63.2	1.6	2.0	5.5
	Checkerboard Elevator Co.									
1	Wheat Bran with Screenings	12.0	15.9	15.0	4.5	4.0	52.0	8.9	11.0	6.7

[6]Lactose 48.9 [7]Lactose 51.2

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Clinton Co									
1	Clinton Corn Gluten Feed	14.8	25.9	25.0	2.0	2.0	44.6	5.1	8.5	7.6
	Coatsworth & Cooper									
1	"C and C" Wheat Bran	14.0	16.4	15.0	4.6	3.5	52.8	7.6	11.5	4.6
2	"C and C" Wheat Shorts	13.3	15.8	16.0	5.1	5.0	55.8	6.0	8.0	4.0
	Coles Feed & Grain Co.									
2	Fortune Producer Mash	12.1	19.6	20.0	4.9	4.0	47.9	5.8	5.0	9.7
	Commander-Larabee Milling Co.									
2	Sunfed Wheat Bran with Screenings	12.8	16.3	14.0	4.1	4.0	52.1	8.6	12.0	6.1
	Community Feed Stores, Inc.									
3	Community Bulky Special	10.3	9.6	9.0	2.4	2.75	51.2	20.4	21.5	6.1
3	Community Chick Mash	12.4	20.1	18.0	5.1	5.0	49.6	4.6	7.0	8.2
2	Community 20% Dairy Ration	11.8	21.3	20.0	5.0	4.5	48.6	7.0	9.0	6.3
2	Community Growing Mash	12.1	18.0	17.0	4.7	4.5	50.4	6.9	8.0	7.9
6	Community Laying Mash	13.1	20.5	20.0	5.0	4.0	45.7	5.7	7.0	10.0
4	Hilltop 20% Dairy Ration	10.9	20.8	20.0	4.5	4.0	46.5	10.5	12.0	6.8
	Consolidated Chemical Industries, Inc.									
3	Digesta-Bone[8]	3.1	5.1	5.0	0.4	—	—	—	—	85.5
	Consolidated Rendering Co.									
3	Corenco Cod and Haddock Meal[9]	9.6	65.0	62.0	3.5	2.0	—	—	—	22.3
2	Corenco 60% Meat Scrap[10]	6.5	62.4	60.0	10.9	6.0	—	—	—	19.7
2	Corenco 50% Meat and Bone Scrap[11]	6.8	50.6	50.0	9.3	6.0	—	—	—	30.5
2	Corenco 45% Meat and Bone Scrap[12]	8.5	44.4	45.0	8.1	6.0	—	—	—	37.0
	Copeland Flour Mills, Ltd.									
1	Copeland's "Dandy Wheat Bran"	14.3	17.0	17.0	4.7	3.5	50.5	8.7	11.5	4.8
	Corn Products Refining Co.									
3	Buffalo Corn Gluten Feed (Sweetened)	14.0	20.9	20.0	1.8	1.0	51.6	6.2	7.0	5.5

3	Buffalo Corn Gluten Feed	12.4	25.8	25.0	2.1	2.0	47.4	7.0	8.5	5.3
4	Diamond Corn Gluten Meal	9.7	44.3	43.0	2.8	1.0	39.9	2.2	4.0	1.1
1	Soy Bean Oil Meal	12.8	44.0	41.0	4.2	4.0	28.1	5.5	7.0	5.4
	Nicolas Courcy Grain Co.									
2	Courcy Dairy Feed	12.8	19.6	21.0	4.3	4.5	51.7	5.5	8.0	6.1
2	Courcy Eastern Laying Mash	10.9	16.1	16.0	4.4	4.0	52.6	5.8	7.0	10.2
2	Courcy Heavy Mixed Feed	12.0	16.0	16.0	4.1	4.5	55.6	6.1	7.0	6.2
	Cover & Palm Co.									
1	C & P Baby Chick Grains	13.5	11.4	10.0	3.8	2.0	68.4	1.2	3.0	1.7
2	C & P Grade A Laying Mash	11.7	19.6	20.0	4.5	4.0	48.0	4.9	7.0	11.3
2	C & P Growing Mash	11.4	18.3	17.0	4.5	4.0	49.8	5.5	7.0	10.5
2	C & P Starter and Broiler Ration	11.6	19.2	17.0	4.5	4.0	49.5	5.0	6.0	10.2
	Chas. M. Cox Co.									
2	Utility Growing Ration	12.0	16.1	15.0	4.1	4.0	54.4	5.6	7.0	7.8
2	Utility Laying Ration	11.7	18.8	18.0	4.6	4.0	50.2	5.2	7.0	9.5
	Curley Grain and Fuel Co.									
2	Crystal All Grain Starting Food	10.9	17.0	15.0	4.4	4.0	57.6	4.1	4.0	6.0
1	Crystal Complete Growing Feed	11.9	16.1	14.0	4.3	4.0	58.9	3.3	4.0	5.5
1	Crystal Complete Laying Mash	12.5	16.8	16.0	4.1	4.0	57.9	3.0	4.0	5.7
2	Crystal 24% Dairy Ration	11.3	25.7	24.0	4.2	5.0	43.6	6.8	9.0	8.4
2	Crystal 20% Dairy Ration	11.8	21.6	20.0	4.1	4.0	46.8	7.3	12.0	8.4
1	Crystal 16% Dairy Ration	12.2	17.7	16.0	3.6	4.0	49.4	9.5	12.0	7.6
1	Crystal Dog Food	9.3	22.4	21.4	3.0	3.1	48.1	3.4	4.1	13.8
2	Crystal Egg Mash	11.2	19.9	18.0	4.3	4.0	49.5	4.6	6.0	10.5
2	Crystal Growing Mash	11.5	17.6	16.0	4.5	5.0	54.7	4.3	5.0	7.4
2	Crystal Horse Feed	13.6	12.3	11.0	3.4	3.0	62.0	5.0	10.0	3.7
2	Crystal Starting Food for Broilers	11.3	18.4	16.0	4.4	4.0	54.8	3.7	4.5	7.4
2	Crystal Stock Feed	11.5	12.7	12.0	4.1	4.0	54.1	11.2	12.0	6.4
1	Premier Stock Feed	12.5	9.4	9.0	3.8	4.5	60.1	9.0	13.5	5.2
	Dawe's Vitamelk Co.									
2	Dawe's Vitamelk Base	9.0	24.1	21.0	8.7	4.5	46.5	4.1	5.0	7.6
	Dehydrating Process Co.									
2	"Protine Brand" White Fish Meal[13]	5.5	63.6	63.0	4.1	4.0	—	—	—	26.9
	Delaware Mills, Inc.									
2	Delaware Sweet 24% Dairy Feed	12.6	25.1	24.0	4.3	4.5	44.7	6.1	9.0	7.2
1	Delaware Sweet 20% Dairy Feed	13.5	20.7	20.0	4.1	4.5	46.7	7.3	10.0	7.7
3	Delaware 85% Horse Feed	14.3	10.9	9.0	3.2	3.0	61.9	6.3	9.0	3.4
4	Indian Sweet 20% Dairy Feed	11.9	22.0	20.0	3.7	4.0	45.1	9.8	12.0	7.5

[8]Phosphoric acid 34.5 [9]Phosphoric acid 9.0 [10]Phosphoric acid 7.8 [11]Phosphoric acid 12.3 [12]Phosphoric acid 13.9 [13]Phosphoric acid 11.2

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Delaware Mills, Inc.—Concluded									
1	Indian Growing Mash	11.2	16.6	15.0	4.6	4.5	55.0	5.7	7.0	6.9
4	Indian Laying Mash	12.1	18.4	18.0	4.6	4.5	52.1	6.2	8.0	6.6
	Denver Alfalfa Milling & Products Co.									
1	Alfalfa Meal	7.7	15.5	13.0	1.6	1.0	37.1	27.2	33.0	10.9
	Dewey Bros. Co.									
5	Corn 3 D Distillers Dried Grains	6.6	27.8	28.0	8.3	8.0	42.9	12.2	14.0	2.2
	Frank Diauto									
1	Circle D Egg Ration	12.3	17.9	15.0	4.5	4.0	55.0	4.3	6.0	6.0
1	Diauto's Complete Broiler Ration	11.5	19.8	18.0	4.4	5.0	52.5	3.7	6.0	8.1
1	Diauto's Dairy Feed	13.2	18.3	17.0	4.0	3.92	51.9	7.2	7.74	5.4
1	Diauto's Fancy Chick Growing Mash	12.0	17.6	16.0	4.7	4.0	53.0	5.3	5.0	7.4
1	Diauto's Special Egg Mash	12.1	19.3	20.0	4.9	4.0	51.2	4.7	7.0	7.8
	F. Diehl & Son, Inc.									
2	Diehl's Dairy Feed	11.0	19.9	18.0	4.2	3.0	48.0	9.3	14.0	7.6
2	Diehl's Dry Mash	10.7	24.2	16.0	5.2	3.0	44.4	5.2	12.0	10.3
	Dietrich & Gambrill, Inc.									
2	All Purpose Complete Ration	12.3	15.8	15.0	4.1	4.0	55.7	4.4	7.0	7.7
2	Conditioning Ration	11.6	15.8	15.0	5.9	6.0	53.3	3.7	6.0	9.7
2	D & G Breeder Mash	11.4	19.4	19.0	4.7	5.0	50.0	5.9	9.0	8.6
1	D & G Broiler Mash	12.3	18.4	18.0	4.0	4.0	51.8	5.6	7.0	7.9
1	D & G Dairy Feed	13.3	19.6	20.0	3.6	4.0	46.6	9.9	12.0	7.0
1	D & G Turkey Growing Mash	11.1	22.1	20.0	4.4	4.0	45.5	4.8	8.0	12.1
2	Frederick Laying Mash	11.6	18.8	18.0	4.0	4.0	51.3	6.3	8.0	8.0
1	Frederick Stock Feed	12.7	9.3	7.5	3.7	3.0	61.3	8.6	12.0	4.4
1	Gambrill's Chick Grains	15.5	9.3	10.0	3.4	2.5	69.0	1.2	3.0	1.6
2	Gambrill's Horse Feed	14.2	10.1	10.0	3.4	3.5	62.7	6.5	12.0	3.1
1	Pen-Mar Dairy Feed	10.9	20.0	20.0	4.9	4.0	50.0	6.7	9.0	7.5

	John C. Dow Co., Inc.									
1	Dow's Crumpled Dog Food	7.0	22.2	20.0	4.3	4.0	54.9	0.4	—	11.2
	Dreyer Commission Co.									
3	Dryco Wheat Bran with Screenings	13.2	16.2	14.5	3.8	3.5	51.0	9.5	10.0	6.3
	J. L. Dunnell & Son									
1	Dunnell's Sweetened Dairy Ration	10.6	17.9	18.0	5.1	4.0	47.7	10.8	13.0	7.9
1	Excel 20 Per cent Dairy Ration	11.7	20.9	20.0	3.5	4.5	49.6	7.1	10.0	7.2
1	Excel Mash	11.9	22.6	19.0	3.9	5.0	48.5	3.9	6.0	9.2
1	Full Value Mixed Feed	13.2	12.6	15.0	3.1	5.0	61.9	5.5	6.0	3.7
1	Horse Feed	13.5	12.0	11.0	2.9	3.5	63.2	5.3	7.0	3.1
	Eagle Roller Mills Co.									
1	Eagle Wheat Bran with Screenings	12.2	17.4	14.0	4.4	4.0	52.4	7.9	12.0	5.7
	East Bridgewater Farmers' Exchange, Inc.									
1	Exchange Dairy Feed	13.7	19.7	20.0	3.9	4.0	50.6	6.5	9.0	5.6
1	Exchange Growing Feed	12.1	19.3	16.0	4.0	4.0	51.5	4.8	7.0	8.3
1	Exchange Mash Feed	13.0	18.7	18.0	4.7	4.0	49.1	5.2	6.0	9.3
	Eastern Grain Co.									
3	Eastern 24% Dairy Ration Sweetened	13.0	25.2	24.0	4.2	4.0	44.0	6.3	9.0	7.3
3	Eastern 20% Dairy Ration Sweetened	13.9	21.8	20.0	4.0	4.0	47.5	6.1	9.0	6.7
1	Eastern Poultry Flush	12.0	19.3	17.5	3.9	4.0	52.4	4.4	5.0	8.0
	Eastern States Farmers' Exchange									
3	Eastern States All Mash Breeder	12.2	16.3	15.0	4.7	4.0	55.4	4.8	6.0	6.6
3	Eastern States All Mash Developer (1938 registration)	11.6	15.8	14.5	3.9	3.5	57.0	4.7	6.0	7.0
1	Eastern States All Mash Developer	13.3	15.8	14.5	4.2	3.5	56.3	4.5	5.5	5.9
1	Eastern States All Mash Egg	10.9	16.3	15.5	4.6	4.0	57.0	4.9	6.0	6.3
4	Eastern States Breeder Mash	10.6	21.7	20.0	5.1	4.0	46.5	5.2	6.0	10.9
2	Eastern States Developer	10.6	19.2	18.5	4.6	4.0	51.9	5.3	6.5	8.4
1	Eastern States Dog Feed	8.0	24.5	22.5	4.8	4.0	48.8	2.5	3.5	11.4
1	Eastern States Duck Breeder (1938 registration)	11.4	19.4	17.0	4.6	4.0	50.4	5.2	6.5	9.0
1	Eastern States Duck Breeder	10.6	21.0	17.0	5.1	4.0	51.0	4.0	5.5	8.3
1	Eastern States Duck-Fat	9.5	19.5	15.0	4.6	4.0	53.6	4.3	5.0	8.5
1	Eastern States Duck-Start & Grow	10.2	18.0	16.0	4.6	4.0	54.6	4.4	6.0	8.2
3	Eastern States Egg Mash	11.1	21.6	20.0	5.1	4.0	47.5	5.4	6.5	9.3
2	Eastern States Fattener	11.0	18.9	14.5	4.1	4.0	56.8	4.7	5.0	4.5
3	Eastern States Fitting Ration	13.0	13.9	12.0	3.8	3.5	57.7	5.6	8.5	6.0
2	Eastern States Flushing	10.2	20.0	18.5	3.5	3.0	54.2	3.7	4.5	8.4
2	Eastern States Fulpail	13.0	21.0	20.0	4.3	4.0	49.3	6.2	8.5	6.2
5	Eastern States Highland 20	12.2	21.1	20.0	4.0	3.5	47.1	8.4	11.5	7.2

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Eastern States Farmers' Exchange—Concluded									
2	Eastern States Highland 16	12.6	17.8	16.0	4.2	3.5	50.9	7.5	11.5	7.0
1	Eastern States Hog Meal	11.5	16.1	14.5	4.5	4.0	55.1	4.7	5.0	8.1
4	Eastern States Horse Feed	12.9	11.8	10.5	3.5	3.0	60.8	6.1	7.0	4.9
1	Eastern States Milkmore	11.6	24.0	24.0	4.3	4.5	46.5	6.8	8.5	6.8
2	Eastern States Milkmore (1938 registration)	12.5	24.0	24.0	4.4	4.5	45.4	6.6	9.0	7.1
1	Eastern States Sixteen	12.5	17.7	16.0	4.0	4.0	53.8	6.3	8.0	5.7
1	Eastern States Starting and Broiler	12.0	21.7	18.5	4.3	4.0	50.1	4.2	5.0	7.7
1	Eastern States Succulence (1938 registration)	15.2	11.4	10.0	2.2	2.0	50.1	13.9	18.0	7.2
1	Eastern States Succulence	15.7	11.8	10.0	2.2	1.5	48.8	15.0	18.0	6.5
1	Eastern States Turkey-Breeder	10.8	25.4	24.0	5.2	4.0	42.8	4.8	6.0	11.0
2	Eastern States Turkey-Fat	11.1	21.8	20.0	4.8	4.0	49.5	4.6	6.0	8.2
	B. A. Eckhart Milling Co.									
3	Pure Wheat Bran	13.3	15.5	14.0	4.0	3.5	51.6	9.2	12.0	6.4
	Egg-O-Milk Co.									
1	Egg-O-Milk Co.'s Blend	10.8	35.3	32.0	1.5	1.5	43.1	3.1	4.0	6.2
	M. W. Ellis									
2	The Ellis Dairy Feed	11.0	25.0	22.0	4.2	4.0	48.1	7.0	9.0	4.7
4	The Ellis Poultry Mash	11.3	20.8	20.0	5.2	4.0	48.5	5.2	8.0	9.0
2	The Ellis Special Dairy Feed	10.9	19.3	18.0	4.3	4.0	50.9	9.6	10.0	5.0
	Elmore Milling Co., Inc.									
2	Elmore Battery Growing Mash	13.8	17.9	15.0	5.0	4.0	51.6	5.2	6.0	6.5
2	Elmore Chixsaver	12.0	20.3	18.0	5.5	4.0	50.1	5.7	6.0	6.4
1	Elmore Complete Growing Ration	11.9	16.3	15.0	4.7	4.0	55.9	5.1	6.0	6.1
1	Elmore Complete Laying Ration	12.8	15.2	16.0	5.0	4.0	55.4	5.2	6.0	6.4
3	Elmore Complete Starter—Broiler	12.1	19.3	18.0	4.9	4.0	49.9	5.4	6.0	8.4
4	Elmore Egg Mash	11.2	20.3	20.0	5.9	4.0	48.3	5.4	8.0	8.9
1	Elmore Fitting Ration	13.1	14.6	12.0	4.2	4.0	55.0	7.5	9.0	5.6
1	Elmore Fleshing Pellets	13.6	15.6	15.0	5.3	5.0	56.5	5.2	6.0	3.8
2	Elmore Growing Mash	12.8	18.1	17.0	4.7	4.0	53.4	5.1	8.0	5.9
2	Elmore Hog Ration	11.8	16.7	15.0	5.1	5.0	56.0	5.2	6.0	5.2

4	Elmore Horse Feed with Molasses	13.7	11.1	9.0	3.2	2.5	63.9	5.4	11.0	2.7
1	Elmore M. A. C. Laying Mash	11.9	22.1	18.0	6.4	5.0	44.0	6.2	7.0	9.4
1	Elmore M. A. C. Laying Mash (1938 registration)	12.4	17.8	17.0	5.0	5.0	51.0	5.7	7.0	8.1
3	Elmore Milk Grains "Twenty-Four"	10.9	24.9	24.0	4.8	4.5	45.2	8.2	10.0	6.0
1	Elmore Milk Grains "Twenty"	11.9	22.5	20.0	5.5	5.5	46.5	8.2	10.0	5.4
1	Elmore Milk Grains "Twenty" (Sweet)	12.0	21.9	20.0	4.6	4.5	48.5	7.5	10.0	5.5
1	Elmore's Makegrow Little Pig Ration	12.1	20.2	18.0	5.2	4.5	50.0	5.9	7.0	6.6
1	Elmore Rabbit Ration	10.7	15.1	15.0	3.8	3.0	53.9	11.3	11.0	5.2
3	Elmore Stock Feed	11.0	10.2	10.0	4.5	3.0	58.8	11.2	12.0	4.3
3	Elmore 32% Supplemental Dairy Ration	11.4	32.0	32.0	4.3	4.0	38.6	6.9	9.0	6.8
2	Elmore's Sweet Digesto Dairy Feed	12.3	18.3	16.0	3.5	4.0	48.0	10.9	12.0	7.0
2	Elmore "Three Point" Calf Meal	10.8	26.0	24.0	3.8	4.0	48.9	4.6	6.0	5.9
1	Elmore Turkey Breeder Mash	12.0	22.0	20.0	6.1	3.5	45.4	5.5	7.0	9.0
2	Elmore Turkey Growing Mash	11.8	19.2	20.0	4.9	3.5	51.0	5.6	8.0	7.5
2	Elmore Turkey Starting Mash	11.8	22.6	24.0	6.1	4.0	46.7	4.8	6.0	8.0
1	Emco Feed	12.5	21.3	20.0	4.0	4.5	48.4	7.3	10.0	6.5
3	E-M-C-O Horse Feed	14.2	11.3	9.0	3.1	2.5	62.4	5.8	11.0	3.2
1	Granger 24% Dairy Ration	13.0	25.3	24.0	3.8	4.0	43.2	7.8	10.0	6.9
8	Granger 20% Dairy Ration	13.2	21.6	20.0	3.7	4.0	46.8	8.3	11.0	6.4
2	Waldorf 20% Dairy Ration	12.2	20.4	20.0	3.7	4.0	46.7	9.8	11.0	7.2
	John W. Eshelman & Sons									
1	Eshelman Challenge Dairy Feed	12.8	23.3	24.0	4.3	4.0	43.7	8.2	11.0	7.7
5	Eshelman Conestoga 20% Dairy Feed	12.8	21.2	20.0	4.0	4.0	45.1	8.3	11.0	8.6
1	Eshelman Conestoga Horse Feed	15.1	10.5	9.0	3.5	3.0	63.0	4.1	10.0	3.8
1	Eshelman Lancaster 60 Horse Feed	16.0	10.7	9.0	3.3	2.5	56.2	8.8	11.0	5.0
2	Eshelman Pennsy 16 Dairy Feed	13.7	18.4	16.0	3.8	3.0	46.0	8.7	11.0	9.4
2	Eshelman Pennsy Laying Mash	12.7	19.8	18.0	4.7	4.5	48.2	6.2	8.0	8.4
1	Eshelman Red Rose All-Mash Starter & Grower	9.9	19.0	16.0	4.7	4.0	51.9	6.0	7.0	8.5
1	Eshelman Red Rose Calf Starter	9.4	23.8	22.0	4.8	4.0	53.9	3.1	5.0	5.0
1	Eshelman Red Rose Chick Grains	14.1	11.4	10.0	3.3	3.0	68.2	1.4	3.0	1.6
1	Eshelman Red Rose Complete Laying Mash	12.5	17.6	15.0	4.2	4.0	54.9	4.5	6.0	6.3
1	Eshelman Red Rose 24 Dairy Feed	13.2	24.9	24.0	4.1	4.0	42.8	6.9	11.0	8.1
2	Eshelman Red Rose 20 Dairy Feed	13.5	20.6	20.0	3.7	4.0	46.1	8.6	11.0	7.5
1	Eshelman Red Rose Duck Starter and Grower	11.5	21.6	19.0	5.0	4.0	48.9	4.9	7.5	8.1
1	Eshelman Red Rose Fitting Ration	12.6	13.9	12.0	4.2	3.5	57.5	5.3	7.0	6.5
1	Eshelman Red Rose Growing Mash	11.6	19.4	16.0	5.2	4.0	50.7	6.1	7.5	7.0
2	Eshelman Red Rose Laying Mash	11.3	22.6	20.0	5.4	5.0	45.5	6.5	7.5	8.7
1	Eshelman Red Rose 85 Horse Feed	15.7	10.9	9.0	3.7	3.0	60.4	6.3	10.0	3.0
1	Eshelman Red Rose Pig & Hog Meal	11.9	19.6	16.0	4.1	5.0	51.3	6.2	10.0	6.9
2	Eshelman S-O-S	13.8	13.1	11.0	2.2	2.0	48.6	13.3	15.0	9.0
1	Eshelman Choice Mixed Wheat Feed with Screenings	12.6	15.6	14.5	3.7	4.0	55.8	7.1	8.5	5.2
	Evans Milling Co.									
2	Emco Hominy Feed	12.9	11.1	10.0	6.8	6.0	60.6	5.7	6.0	2.9
1	Evans 44% Protein Soy Bean Oil Meal	11.3	42.7	41.0	4.5	4.0	31.5	4.4	7.0	5.6

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Excelsior Milling Co.									
3	Camel Fancy Wheat Feed	11.5	15.2	15.0	4.3	4.0	55.9	7.7	7.5	5.4
	Farm Service Co.									
1	C Complete Starter & Broiler Ration	10.1	18.0	18.0	4.8	3.5	52.3	5.8	7.0	9.0
3	C Dairy Feed	11.4	22.1	21.0	3.9	4.0	48.8	7.0	9.0	6.8
3	C Growing Mash	11.2	17.0	18.0	5.2	4.0	51.2	6.2	7.0	9.2
2	C Laying Mash	11.9	20.1	19.0	4.6	4.5	50.1	5.3	8.0	8.0
2	C S S Mash	13.0	18.8	18.0	5.1	4.0	44.5	8.8	9.0	9.8
1	18% Dairy Ration	10.8	20.2	18.0	3.8	3.5	44.9	13.8	13.0	6.5
2	Diamond A Dairy Feed	11.0	26.1	24.0	4.0	4.0	43.4	8.6	8.0	6.9
3	Diamond C Dairy Feed	11.6	21.9	21.0	4.2	4.0	48.8	7.2	10.0	6.3
2	Farm Service All Mash	12.6	18.4	16.0	4.5	4.5	52.1	5.2	5.0	7.2
1	Farm Service Chick Starter	11.6	19.1	18.0	4.7	4.0	50.9	4.1	6.0	9.6
2	Farm Service 24% Dairy Feed	11.7	24.7	24.0	4.0	4.0	43.8	8.7	11.0	7.1
1	Farm Service 20% Dairy Ration	13.4	20.6	20.0	3.3	4.0	46.8	8.8	10.0	7.1
1	Farm Service 16% Dairy Feed	12.6	17.5	16.0	2.6	3.0	48.7	10.7	11.0	7.9
3	Farm Service 14% Fitting Ration	14.7	15.0	14.0	4.0	4.0	53.5	6.8	8.0	6.0
1	Farm Service Goat Ration	13.6	15.9	15.0	3.5	4.0	53.7	7.6	9.0	5.7
1	Farm Service Growing Mash	12.7	19.2	18.0	4.7	4.0	48.4	6.3	7.0	8.7
1	Farm Service Horse Feed	14.3	11.0	8.0	3.6	2.0	61.7	6.4	9.0	3.0
2	Farm Service Laying Mash	12.4	21.5	20.0	5.0	5.0	44.8	6.1	7.0	10.2
2	Farm Service Starter and Broiler Ration	12.9	18.2	18.0	4.8	5.0	52.8	5.0	7.0	6.3
3	Farm Service Stock Feed	11.8	9.7	9.0	3.7	3.0	61.5	8.6	12.0	4.7
3	Lawrence Cow Ration	13.4	19.5	20.0	3.9	4.0	48.8	7.6	12.0	6.8
3	N. E. C. Laying Mash	11.9	18.5	19.0	4.9	5.0	49.6	5.9	6.0	9.2
2	North Star All Mash Complete	11.7	18.4	16.0	4.8	4.5	52.9	5.0	5.0	7.2
2	North Star Breeder Mash	11.9	20.7	20.0	4.8	4.0	49.4	4.3	7.0	8.9
1	North Star 20% Dairy Feed	11.6	24.2	20.0	3.9	4.5	43.7	9.0	12.0	7.6
3	North Star 16% Dairy Feed	12.6	17.2	16.0	2.9	3.0	48.8	10.6	11.0	7.9
2	North Star Growing Mash	11.4	19.7	16.0	4.6	4.0	49.5	5.8	7.0	9.0
2	North Star Horse Feed	13.8	10.5	8.0	3.5	2.0	60.1	7.4	9.0	4.7
1	North Star Intermediate Chick Feed	13.3	10.2	10.0	3.0	3.0	70.7	1.4	3.0	1.4
2	North Star Laying Mash	11.2	21.8	20.0	4.8	5.0	45.7	6.1	7.0	10.4
2	North Star Stock Feed	11.2	10.1	9.0	3.7	3.0	61.3	9.4	12.0	4.3

	Farmers Feed Co.									
5	"Bull Brand" Dried Brewers Grains	8.0	27.0	26.0	6.8	6.0	40.1	14.7	17.0	3.4
	Fernando Valley Milling & Supply Co.									
3	Alfalfa Leaf Meal Ideal Greens	9.4	20.5	20.0	2.6	2.5	40.6	16.6	18.0	10.3
	Ferneau Grain Co.									
2	F Corn Distillers Dried Grains	6.3	32.8	28.0	10.4	9.0	38.1	10.8	14.0	1.6
	Finger Lakes & Hudson Flour Mills, Inc.									
2	Rye Feed	11.8	17.4	13.5	3.3	3.0	59.5	4.5	6.0	3.5
1	Kangaroo Standard Bran with Screenings	14.3	16.0	15.0	4.9	4.0	48.4	10.6	12.0	5.8
1	KangarooStandardWheatMiddlings with Screenings	13.4	17.8	16.0	5.9	4.0	50.3	7.8	9.5	4.8
1	Kangaroo Red Dog	11.7	16.5	16.0	3.9	3.5	59.8	4.6	4.0	3.5
	First National Stores, Inc.									
1	Henfield Egg Mash	10.8	21.0	20.0	4.3	4.0	48.9	5.4	7.0	9.6
	Fisher Food Co.									
1	Fisher Dog Food	10.1	22.1	23.0	4.5	4.0	50.7	1.6	2.5	11.0
	Flory Milling Co., Inc.									
2	Flory's "All Mash" Chick Starter	10.9	18.6	17.0	5.4	4.5	51.5	5.6	6.0	8.0
1	Flory's Broiler Mash	10.2	19.1	18.0	6.5	4.0	52.2	4.3	5.0	7.7
1	Flory's 24% Butterfat Dairy Feed	11.6	22.7	24.0	5.1	4.0	46.5	8.0	12.0	6.1
2	Flory's Complete Starter-Grower-Layer Mash	11.3	16.0	16.0	5.0	4.0	54.9	6.0	7.0	6.8
2	Flory's 20% Cream-O-Milk Dairy Feed	11.5	20.7	20.0	3.5	4.0	48.6	9.2	12.0	6.5
2	Flory's Horse Feed	14.5	10.0	9.0	3.0	2.5	59.5	7.1	10.0	5.9
2	Flory's 24% Special Dairy Feed	11.6	25.1	24.0	3.7	4.0	43.8	8.6	10.0	7.2
2	Flory's 20% Special Dairy Feed	12.2	21.7	20.0	3.3	4.0	48.1	7.5	11.0	7.2
1	Flory's 32% Protein Supplement Mash	9.4	34.8	32.0	5.8	5.0	28.9	6.3	8.0	14.8
2	Golden Egg Growing Mash	11.2	16.9	16.0	4.3	4.0	52.9	6.9	7.0	7.8
2	Golden Egg Laying Mash	10.5	21.7	20.0	4.8	4.0	47.3	6.3	7.0	9.4
3	Record Dairy Feed	12.1	23.4	20.0	3.2	4.0	46.9	7.6	9.0	6.8
	Fred A. Fountain, Inc.									
2	Fountain's B Starting and Broiler Ration	11.9	19.1	17.5	4.9	4.0	51.9	4.5	7.0	7.7
2	Fountain's Breeder Mash	11.7	19.9	17.0	4.9	4.5	49.9	4.4	7.0	9.2
1	Fountain's H Laying Mash	13.1	20.4	18.0	4.9	4.0	47.1	4.3	7.0	10.2
	Fruen Milling Co.									
1	Fruen's Glenwood Fine Ground Feeding Oatmeal	11.9	16.4	15.0	4.4	4.0	62.1	3.1	3.75	2.1
	Paul Fuller & Sons									
1	Eggmaker	10.8	17.0	18.0	4.8	4.0	53.1	6.5	7.0	7.8

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Funk Bros. Seed Co.									
2	Funk's 41% Protein Soybean Oil Meal	11.2	42.1	41.0	6.8	4.5	29.4	5.1	7.0	5.4
	Gaines Food Co.									
1	Gaines Dog Food	7.0	28.4	23.0	5.5	3.0	41.9	3.4	4.0	13.8
	J. B. Garland & Son, Inc.									
2	Garland Chick Starter	11.6	18.9	17.0	4.6	3.5	51.4	5.8	5.0	7.7
1	Garland Complete Starting & Broiler Mash	13.0	18.8	17.0	5.1	3.5	50.0	5.1	5.5	8.0
3	Garland 24% Dairy Ration	12.4	25.3	24.0	4.6	4.0	43.4	7.3	10.0	7.0
3	Garland 20% Dairy Ration	12.4	23.6	20.0	4.6	4.0	45.7	7.6	10.0	6.5
4	Garland Growing Mash	11.3	17.6	14.0	5.2	3.0	53.3	5.9	7.0	6.7
4	Garland Horse Feed	13.6	11.4	10.0	3.3	3.0	62.3	5.9	9.0	3.5
4	Garland Laying Mash	12.1	20.5	18.0	5.3	3.0	47.7	5.8	7.0	8.6
4	Garland Stock Feed	10.1	9.7	8.5	4.8	4.0	60.1	10.3	12.0	5.0
1	Royal Complete Growing Ration	11.6	14.2	13.0	4.9	4.0	56.9	5.0	6.0	7.4
1	Royal Complete Laying Ration	12.6	16.0	15.0	5.8	4.0	53.6	5.5	6.0	6.5
5	Royal 24% Dairy Ration	11.7	25.4	24.0	4.8	4.0	42.7	8.6	11.0	6.8
4	Royal 20% Dairy Ration	12.2	22.8	20.0	5.3	4.0	44.5	9.0	11.0	6.2
4	Royal Laying Mash	11.8	18.5	18.0	4.8	3.0	48.6	7.4	8.0	8.9
2	Royal Worcester Complete Dairy Ration	12.2	20.7	20.0	3.6	3.0	48.2	8.5	10.0	6.8
	General Foods Corp.									
1	Burt's Cereal Feed	6.9	18.1	17.0	3.5	3.0	51.2	15.8	20.0	4.5
2	Burt's Hominy Feed	11.5	11.5	10.0	6.9	6.0	63.2	4.0	6.0	2.9
	General Mills, Inc.									
2	Washburn's Gold Medal Hard Wheat Adrian Red Dog	12.2	18.3	16.0	4.3	3.5	59.6	2.6	4.0	3.0
1	Washburn's Gold Medal Wheat Bran	12.0	16.3	15.0	4.2	3.5	50.5	9.8	11.0	7.2
3	Washburn's Gold Medal Hard Wheat Bran with Screenings	13.2	15.4	14.0	4.3	3.5	51.0	9.5	12.0	6.6
1	Washburn's Gold Medal Hard Wheat Standard Middlings with Screenings	11.3	16.7	15.0	4.6	4.0	55.4	7.1	9.5	4.9
2	Washburn's Gold Medal Fancy Wheat Mixed Feed	11.7	16.3	15.0	4.3	3.5	57.9	5.3	7.5	4.5
1	Oven Tailings	9.7	15.9	15.0	4.0	4.0	62.0	3.6	8.0	4.8

	W. K. Gilmore & Sons, Inc.									
2	Conference Mash	11.4	18.5	17.0	4.7	4.0	48.6	6.1	6.5	10.7
	John R. Golter									
2	Golter Special Complete Ration	12.3	16.2	15.0	4.4	4.5	55.4	4.3	6.0	7.4
	Goode Grain Co.									
3	Goode Laying Mash	12.3	17.7	17.0	4.1	4.0	49.5	8.6	7.0	7.8
3	Goode Starting & Growing Mash	12.2	17.8	16.0	4.1	4.0	49.8	7.7	7.0	8.4
	Grand Union Co.									
1	Grand Union Laying Mash	9.3	20.1	20.0	3.3	4.0	49.8	7.2	8.0	10.3
	D. H. Grandin Milling Co.									
2	Grandin's Baby Chick Grains	13.4	10.5	10.0	3.0	2.5	70.3	1.4	5.0	1.4
1	Grandin's Breeder Mash	10.3	22.4	20.0	3.7	4.5	46.4	6.7	8.0	10.5
4	Grandin's Broiler Mash	10.5	20.9	20.0	4.4	5.0	48.9	5.9	8.0	9.4
1	Grandin's 24 Dairy Feed	13.2	23.7	24.0	4.0	4.0	47.2	6.0	10.0	5.9
2	Grandin's 20 Dairy Feed	12.6	20.5	20.0	4.4	4.0	48.2	6.2	10.0	8.1
1	Grandin's 16 Dairy Feed	12.2	18.2	16.0	3.6	4.0	51.8	5.9	10.0	8.3
2	Grandin's 14 Fitting Ration	13.4	15.0	14.0	4.2	4.0	53.7	5.6	9.0	8.1
2	Grandin's Fleshing Pellets	10.7	15.5	15.0	4.7	4.5	54.9	4.8	6.5	9.4
2	Grandin's Green Feed	14.8	11.2	10.0	1.4	1.0	45.6	19.9	25.0	7.1
2	Grandin's Growing Mash	10.4	16.3	15.0	4.2	4.0	52.0	6.2	8.0	10.9
4	Grandin's Horse Feed	13.9	10.1	9.5	4.0	3.5	61.6	6.5	11.0	3.9
7	Grandin's Laying Mash	10.4	21.3	20.0	4.2	4.0	48.2	6.2	8.0	9.7
2	Grandin's Milk Maker	11.2	22.3	20.0	5.0	4.5	47.7	7.0	10.0	6.8
2	Grandin's Pig and Hog Ration	10.5	20.1	18.0	4.4	5.0	49.3	6.3	10.0	9.4
5	Grandin's Start-to-Finish Mash	10.9	17.9	16.0	4.3	4.0	52.6	6.3	7.0	8.0
3	Grandin's Stock Feed	9.6	10.2	9.0	4.8	4.0	60.6	8.9	12.0	5.9
1	Grandin's Turkey Starter	10.0	26.9	24.0	4.5	4.0	40.2	5.6	7.0	12.8
3	Grandin's Twin Six Dairy Feed	12.1	23.4	22.0	4.1	4.5	46.3	6.8	10.0	7.3
2	M-S (Money Saver) 20 Dairy Feed	13.4	22.0	20.0	3.6	3.5	47.2	6.3	12.0	7.5
2	M-S (Money Saver) Growing Mash	10.4	17.4	15.0	4.0	4.0	50.9	6.8	8.0	10.5
1	M-S (Money Saver) Horse Feed	14.9	10.4	9.0	3.6	3.0	57.0	7.5	11.0	6.6
3	M-S (Money Saver) Laying Mash	10.9	20.0	18.0	3.5	4.0	49.4	6.3	8.0	9.9
	Great Atlantic & Pacific Tea Co.									
2	Daily Egg Laying Mash Feed	11.0	19.6	20.0	4.2	4.0	49.0	6.0	6.5	10.2
2	Daily Growth Calf Meal	11.5	26.5	25.0	4.2	4.0	49.2	4.1	5.0	4.5
2	Daily Growth Chick Starter	11.4	16.6	16.5	4.4	4.5	54.5	4.9	4.5	8.2
1	Daily Growth Fine Chick Feed	12.2	12.0	10.0	4.2	3.0	68.3	1.4	5.0	1.9
1	Daily Growth Developing Feed	14.8	9.5	10.0	3.1	2.5	69.7	1.6	4.0	1.3
3	Daily Growth Growing Mash	10.8	18.4	17.5	4.6	4.0	50.4	6.2	6.5	9.6
2	Daily Horse Feed	14.4	10.0	9.5	3.6	3.0	60.8	7.3	10.0	3.9

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Great Atlantic & Pacific Tea Co.—Concluded									
2	Daily Milk Dairy Feed	12.2	17.6	16.0	3.7	3.0	46.2	10.7	12.0	9.6
3	Milky Way Dairy Feed 24%	12.2	23.3	24.0	3.7	3.5	45.3	8.0	9.0	7.5
2	Milky Way Dairy Feed 20%	12.7	20.0	20.0	2.9	3.5	46.6	8.9	9.0	8.9
	Green Acres Farms									
1	Green Acres Brand Super—Quality Alfalfa Meal	5.6	19.9	17.0	2.4	2.0	39.6	24.5	27.0	8.0
	Hales & Hunter Co.									
1	Kingfalfa Horse Feed	15.8	10.5	9.0	3.5	2.5	59.5	6.4	10.0	4.3
1	Lucky Dog Supplement	8.9	27.9	22.0	6.5	4.0	46.4	1.7	6.0	8.6
2	Red Comb All-Mash Pellets	11.4	17.4	15.0	4.9	4.0	52.9	5.8	8.0	7.6
1	Red Comb All-Mash Grower	12.1	15.3	14.0	3.7	4.0	57.1	6.7	7.0	5.1
1	Red Comb Batry Fed Grower	10.4	15.7	14.0	4.4	4.0	58.2	5.6	6.0	5.7
2	Red Comb Batry Fed Layer	11.3	16.8	15.0	4.6	4.0	54.7	4.9	6.0	7.7
2	Red Comb Broiler Mash	11.1	20.7	18.0	4.7	4.0	50.4	5.2	7.0	7.9
1	Red Comb Chick Starter	10.5	18.6	18.0	4.1	4.0	55.6	4.6	6.0	6.6
1	Red Comb Coarse Chick	13.5	10.9	10.0	5.1	2.5	66.4	2.2	5.0	1.9
1	Red Comb Fine Chick	15.2	10.7	10.0	2.0	2.5	70.0	1.1	5.0	1.0
2	Red Comb Egg Mash	10.9	19.7	18.0	4.8	4.0	50.1	5.1	7.0	9.4
1	Red Comb Growing Mash	12.4	17.8	16.0	4.2	4.0	53.9	5.4	7.0	6.3
1	Red Comb Sup-Pel	7.2	19.1	19.0	6.4	5.0	53.5	6.2	11.0	7.6
1	Special Red Horn 20% Dairy Feed	13.1	21.6	20.0	3.7	3.5	47.2	7.6	12.0	6.8
	D. Harbeck									
2	Crusader All Purpose Mash	12.3	19.0	18.0	5.3	3.5	50.3	5.3	7.0	7.8
2	Welcome Dairy Feed	11.2	24.4	20.0	3.9	4.0	48.0	6.2	10.0	6.3
2	Welcome Growing Mash	12.7	17.2	16.0	5.2	4.0	51.3	4.6	7.0	9.0
2	Welcome Laying Mash	12.2	17.8	17.0	5.6	4.0	49.0	4.6	7.0	10.8
2	Welcome Starter & Broiler Ration	12.1	19.1	18.0	5.7	4.0	52.5	3.7	7.0	6.9
	Hecker-Jones-Jewell Milling Division of Standard Milling Co.									
1	Choice Wheat Bran with Screenings	14.1	18.0	13.5	4.5	3.5	48.2	9.4	12.0	5.8
1	Wheat Standard Middlings with Screenings	12.8	20.2	15.0	4.9	4.0	49.8	7.0	9.5	5.3

	D. B. Hodgkins' Sons									
2	Hodgkins' Dairy Ration	11.9	21.5	20.0	4.2	4.5	47.8	7.2	10.0	7.4
1	Hodgkins' Growing Mash	10.6	18.1	17.0	4.3	3.5	52.3	5.2	10.0	9.5
2	Hodgkins' Poultry Mash	11.1	19.6	18.0	5.2	5.0	49.8	5.7	8.0	8.6
	Hood Mills Co.									
1	Fine Ground Feeding Oat Meal	12.2	14.6	14.0	5.4	5.0	60.7	3.5	4.0	3.6
	Horvitz Grain Co.									
2	Mak-M-Lay Laying Mash	11.2	20.1	20.0	4.8	5.0	48.0	7.3	9.0	8.6
2	Wantmore Dairy Ration	11.0	23.3	20.0	4.6	4.0	46.9	7.5	10.0	6.7
2	Wantmore Dairy Ration with Beet Pulp	11.5	20.5	20.0	4.2	4.0	48.7	9.1	10.0	6.0
2	Wantmore 24% Sweetened Special Dairy	11.2	24.6	24.0	4.2	4.0	41.9	9.9	13.0	8.2
2	Wantmore 20% Sweetened Special Dairy	10.9	22.3	20.0	4.1	4.0	43.4	11.8	13.0	7.5
	Hubinger Co.									
1	Ke OK uk Corn Gluten Feed	13.2	26.0	25.0	3.1	2.0	46.7	7.0	8.5	4.0
	Humphreys-Godwin Co.									
9	Dixie Brand Cottonseed Meal	8.3	41.1	41.0	6.5	5.0	28.4	9.3	12.0	6.4
	Illinois Cereal Mills, Inc.									
2	Hominy Feed	11.5	11.4	10.0	6.4	6.0	64.2	3.5	5.0	3.0
	Independent Tallow Co.									
3	Egg-a-day Brand 50% Meat & Bone Scrap[14]	7.3	49.4	50.0	9.7	6.0	—	—	—	29.7
	International Milling Co.									
1	Blackhawk Wheat Standard Middlings with Screenings	11.7	17.8	16.0	4.3	4.5	54.3	6.6	8.5	5.3
	Ismert-Hincke Milling Co.									
1	Oracle Pure Wheat Bran	12.0	17.0	16.0	4.5	3.5	51.7	7.5	11.0	7.3
	Jaquith & Co.									
2	Dairy Ration	12.4	20.6	20.0	4.4	4.0	46.9	7.5	8.0	8.2
2	Growing Mash	11.0	17.7	16.0	5.5	5.0	51.1	6.5	6.0	8.2
2	Horse Feed	13.1	14.1	12.0	3.6	3.5	59.1	5.2	7.0	4.9
2	Laying Mash	10.5	20.1	17.0	5.2	4.0	47.5	7.2	8.0	9.5
	Kansas Flour Mills Corporation									
5	Big Flake Pure Wheat Bran	12.7	15.1	15.0	4.1	3.5	54.0	8.2	11.0	5.9
	Kansas Milling Co.									
3	Wheat Bran with Screenings	12.4	15.8	15.5	3.7	3.5	51.8	8.9	11.0	7.4

[14]Phosphoric acid 11.4

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Kasco Mills, Inc.									
3	Apex Complete Grower	11.6	15.6	14.0	4.1	4.0	56.7	5.6	8.5	6.4
1	Apex Growing Mash	10.6	19.1	17.0	4.0	4.0	49.7	6.7	8.5	9.9
2	Apex Laying Mash	10.8	21.3	20.0	4.4	4.0	47.9	6.1	8.5	9.5
1	Apex Starter	11.7	17.8	16.0	3.7	4.0	53.7	5.5	6.0	7.6
2	Kasco All Mash Chick Starter	12.1	19.1	17.0	4.3	4.0	51.9	4.9	5.5	7.7
2	Kasco All Mash Grower	11.3	16.3	14.0	4.6	4.0	55.8	5.4	5.5	6.6
3	Kasco All Mash Laying & Breeder Ration	12.2	16.4	15.0	4.5	4.0	55.5	4.7	6.0	6.7
2	Kasco Broiler Ration	11.5	22.1	18.0	5.0	4.0	48.0	5.7	5.5	7.7
1	Kasco Complete Dog Ration	9.0	29.3	22.0	4.4	4.0	42.9	2.7	4.0	11.7
1	Kasco Fitting Ration	15.8	15.8	14.0	4.0	4.0	53.5	5.7	8.0	5.2
2	Kasco Horse Feed	13.4	10.2	9.0	3.1	3.0	58.6	6.8	10.0	7.9
2	Kasco Laying & Breeding Mash	10.8	22.6	20.0	5.1	4.0	46.5	5.6	7.0	9.4
2	Kasco 20% Milk Maker	13.2	22.8	20.0	3.7	4.0	46.7	6.2	10.0	7.4
1	Kasco Open Formula 20% Dairy Ration	13.7	21.7	20.0	3.9	3.5	46.0	7.6	10.0	7.1
2	Kasco Pig Hog Feed	11.9	19.2	17.0	4.7	4.0	52.5	5.8	8.0	5.9
2	Kasco Poultry Flushing Mash	9.9	18.7	17.0	4.0	4.0	53.0	4.9	5.5	9.5
2	Kasco Sweet 16% Dairy Feed	12.5	17.8	16.0	3.1	3.5	49.0	9.6	12.0	8.0
2	Kasco Turkey Grower	11.3	21.7	20.0	4.5	4.0	48.6	6.1	8.0	7.8
	Kellogg Co.									
3	White Hominy Feed	9.3	11.4	10.0	7.2	6.0	65.7	3.7	5.0	2.7
	Spencer Kellogg & Sons, Inc.									
1	Kellogg's 32% Protein Old Process Linseed Meal	11.1	34.4	32.0	4.5	4.5	37.4	7.5	9.0	5.1
4	Kellogg's 41% Protein Old Process Soybean Oil Meal	11.8	43.1	41.0	5.0	4.5	29.5	5.0	7.0	5.6
	Kemo Mills									
1	Kemo Corn Feed Meal	16.6	9.1	8.0	5.7	3.75	64.0	2.7	5.0	1.9
	Keystone Dairy Co.									
1	Keystone Skim Milk Powder[15]	7.4	33.0	32.0	0.9	0.75	—	—	—	7.9
	H. H. King Flour Mills Co.									
1	"Fairybow" Wheat Standard Middlings with Screenings	11.8	17.2	15.5	5.1	4.5	52.6	7.7	9.5	5.6
1	"Modoc" Low Grade Wheat Flour with Screenings	12.1	16.8	16.0	4.0	3.0	61.5	2.8	4.0	2.8

	Chas. A. Krause Milling Co.									
3	Badger White Hominy Feed	10.0	11.2	10.0	7.0	6.0	64.7	4.2	5.0	2.9
	Larabee Flour Mills Co.									
1	"Sunfed" Winter Wheat Bran with Screenings	12.2	15.8	15.0	4.1	3.5	50.7	10.2	11.0	7.0
	Larrowe Milling Co.									
3	Dried Beet Pulp	10.9	9.1	7.0	0.6	0.3	56.9	18.7	22.5	3.8
2	41% Protein Cottonseed Meal	8.4	41.7	41.0	6.5	6.0	28.0	8.7	10.0	6.7
6	Larro the Ready Ration for Dairy Cows	11.2	21.5	20.0	4.2	3.75	47.8	9.0	12.0	6.3
2	Larro Broiler Feed	11.7	22.3	20.0	4.2	3.5	49.9	5.0	7.0	6.9
1	Larro Chick Builder	10.6	19.8	19.0	4.6	4.0	49.9	6.1	7.0	9.0
1	Larro Chick Grains	15.7	9.4	10.0	2.4	2.0	70.7	1.1	4.0	1.0
1	Larro Dog Food	6.4	27.5	24.5	5.7	4.5	48.0	3.5	4.5	8.9
3	Larro Egg Mash	10.9	21.2	20.0	4.7	4.0	49.0	5.5	7.5	8.7
1	Larro Pig & Hog Builder	11.2	17.7	17.5	4.1	4.0	53.8	6.0	7.5	7.2
1	Larro Turkey Adult Mash	11.2	20.6	20.0	4.4	4.0	49.5	5.6	7.5	8.7
3	Larro Turkey Finisher	9.8	19.9	19.0	4.5	3.5	50.6	5.7	7.0	9.5
1	Larrowe's 16% Dairy Feed	10.5	17.2	16.0	3.8	3.0	53.1	9.6	11.0	5.8
	John T. Lewis & Bros. Co.									
4	34% Lewis Old Process Linseed Meal	9.9	35.8	34.0	5.4	4.5	36.0	7.6	10.0	5.3
	Maine Fish Meal Co.									
2	Maine Vitamin D Fish Meal[16]	9.6	55.3	55.0	14.1	10.0	—	—	—	19.7
	Mansfield Coal & Grain Co.									
2	Manco 20% Dairy Feed	12.3	21.1	20.0	3.9	4.3	48.7	7.1	7.5	6.9
2	Manco Laying Mash	11.4	22.1	20.0	5.1	5.0	45.4	5.6	5.3	10.4
	Mansfield Milling Co.									
2	Mansfield Chick-Growing Mash	11.4	19.0	17.0	5.3	4.0	48.9	5.8	8.0	9.6
1	Mansfield Chick Starter	11.9	18.3	17.0	5.3	3.5	50.3	5.9	6.5	8.3
2	Mansfield Dry Poultry Mash	11.2	20.7	20.0	5.7	5.0	46.7	6.0	7.0	9.7
2	Mansfield Sweetened "20"	13.9	20.8	20.0	4.2	4.0	47.1	6.9	8.5	7.1
	Maritime Milling Co., Inc.									
2	B B Broiler Ration	11.5	20.2	20.0	5.0	4.0	49.0	6.1	7.0	8.2
2	B B Chick Feed	14.5	10.7	10.0	1.8	2.0	70.7	1.2	4.0	1.1
2	B B Complete Chick Starter Ration	11.6	21.5	20.0	4.7	4.0	47.7	5.6	6.0	8.9
2	B B Bull Brand Dry and Fresh Cow Fitting Ration	13.2	13.2	13.0	3.9	4.0	54.1	7.3	9.0	8.3
1	B B Fattening Mash	12.0	16.4	13.0	5.3	4.0	54.3	5.9	6.0	6.1
2	B B Flushing and Conditioning Mash	12.3	14.8	14.0	4.4	2.5	59.2	3.7	4.0	5.6
2	B B Growing Mash	12.3	18.0	15.0	4.8	4.0	52.0	6.1	7.0	6.8
1	B B Bull Brand Horse Feed	14.4	11.7	8.0	3.4	2.0	56.7	8.2	10.0	5.6

[15]Lactose 50.8 [16]Phosphoric acid 6.2

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Maritime Milling Co., Inc.—Concluded									
2	B B Layer & Breeder Mash	11.6	20.3	20.0	4.7	4.5	47.2	5.5	7.0	10.7
1	B B Rabbit Feed Pellets	12.3	14.1	12.0	3.9	2.5	52.5	9.4	12.0	7.8
1	Sweetened B B Bull Brand "24" Dairy Ration	11.6	24.3	24.0	4.0	4.0	46.4	7.6	9.0	6.1
3	Sweetened B B Bull Brand "20" Dairy Ration	13.9	22.0	20.0	3.9	4.0	47.8	6.5	9.0	5.9
3	B B Daisy Egg Mash	11.3	20.9	20.0	4.2	3.5	46.5	7.6	9.0	9.5
1	B B Daisy Horse Feed	15.5	9.8	6.5	3.1	1.5	58.3	7.7	12.0	5.6
2	Hi-Test Dairy Feed 24% Pro. Sweetened	12.9	23.8	24.0	4.4	4.0	42.7	8.6	12.0	7.6
2	Hi-Test Dairy Feed 20% Pro. Sweetened	14.3	20.7	20.0	4.5	4.0	44.5	7.6	12.0	8.4
4	Marmico 16% Protein Dairy Feed	13.7	18.4	16.0	3.5	4.0	47.2	9.9	12.0	7.3
	C. J. Martenis Grain Co.									
1	Alco Dried Brewers Grains	8.9	24.7	24.0	6.6	6.0	40.5	15.4	20.0	3.9
	Meadow Brook Farms									
1	Meadow Brook Farms Brand Superior Dehydrated Alfalfa Meal	4.5	13.9	17.0	2.4	2.0	42.2	26.9	27.0	10.1
	Merrimack Farmers Exchange, Inc.									
1	Merrimack Milk Ration Sweetened	12.0	21.6	20.0	4.2	4.0	46.3	7.6	8.5	8.3
	Middlesex County Farm Bureau Association									
1	Farm Bureau Brand All Mash Developer	12.4	15.0	14.5	4.5	3.5	56.3	5.1	7.0	6.7
4	Farm Bureau Brand All Mash Laying	12.3	16.9	15.0	4.8	4.0	54.0	5.3	6.5	6.7
2	Farm Bureau Brand Battery Mash	11.9	16.6	16.0	5.2	4.0	52.1	6.0	6.0	8.2
3	Farm Bureau Brand Breeder & Laying Mash 20%	12.1	20.1	20.0	5.3	4.0	48.3	5.6	6.0	8.6
3	Farm Bureau Brand Dairy Ration 24%	11.8	24.5	24.0	4.8	4.5	45.3	7.5	9.0	6.1
3	Farm Bureau Brand Dairy Ration 20%	12.8	20.2	20.0	5.0	4.5	49.6	7.2	8.5	5.2
3	Farm Bureau Brand Dairy Ration 16%	12.9	19.4	16.0	4.6	4.0	50.4	7.1	8.0	5.6
4	Farm Bureau Brand Dairy Ration 12%	13.2	14.6	12.0	4.5	4.5	55.2	7.2	8.0	5.3
4	Farm Bureau Brand Developer	11.8	18.0	18.5	4.5	4.0	53.2	5.8	6.5	6.7
1	Farm Bureau Brand Fattener Mash	13.4	14.2	14.5	4.1	4.0	61.1	3.0	5.0	4.2
3	Farm Bureau Brand Flushing Mash	11.0	21.5	20.5	3.8	4.0	53.4	3.0	3.0	7.3
3	Farm Bureau Brand Horse Feed	13.4	12.4	11.0	3.6	3.0	62.6	4.8	7.5	3.2
2	Farm Bureau Brand Laying Mash 20%	10.4	21.6	20.0	5.4	4.0	49.2	5.6	6.0	7.8

2	Farm Bureau Brand Laying Mash (no milk)	10.6	21.2	20.0	5.6	4.0	48.5	5.6	6.5	8.5
3	Farm Bureau Brand Laying Mash 17%	11.8	18.0	17.0	5.3	4.0	52.4	5.3	6.5	7.2
4	Farm Bureau Brand Starter & Broiler	11.4	18.9	18.0	4.9	4.0	52.4	5.2	5.0	7.2
3	Farm Bureau Brand Succulence	11.6	14.8	10.0	2.8	1.5	47.3	16.3	20.0	7.2
2	Farm Bureau Brand Turkey Fattener	11.6	18.9	18.0	4.3	4.0	51.6	5.7	6.0	7.9
3	Farm Bureau Brand Turkey Growing Ration	11.0	19.5	20.0	5.0	4.0	51.5	5.8	5.5	7.2
	Midland Flour Milling Co.									
1	Town Crier Pure Wheat Bran	13.3	15.9	16.0	3.6	3.5	50.5	9.9	10.0	6.8
1	Town Crier Flour Middlings (Gray Shorts) with Screenings	12.1	18.4	16.0	4.5	3.75	54.1	5.9	6.0	5.0
	Miner Hillard Milling Co.									
2	Choice Steam Cooked Hominy Feed	12.0	11.2	10.0	6.2	5.0	63.7	4.1	5.0	2.8
	Mississippi Valley Grain & Feed Co.									
7	Kent Cottonseed Meal	8.5	40.6	41.0	5.8	5.5	29.3	9.1	12.0	6.7
	Geo. Q. Moon & Co., Inc.									
1	Complete Starter & Broiler Mash	10.9	17.6	18.5	4.5	4.0	53.7	6.1	5.0	7.2
2	Crescent Growing Mash	10.4	15.9	15.0	4.5	4.0	51.4	9.3	9.5	8.5
4	Crescent Laying Mash	11.2	18.2	18.0	4.1	4.0	47.0	9.3	10.0	10.2
1	Crescent Starter Mash	12.1	20.3	18.0	4.1	3.0	47.9	6.9	7.0	8.7
2	Goat Ration	11.4	19.6	18.0	4.4	4.0	50.1	7.3	12.0	7.2
1	Moon's Complete Growing Mash	11.0	18.1	16.0	4.8	4.0	52.7	5.3	7.0	8.1
5	Moon's Complete Laying Mash	11.4	18.5	17.0	4.8	4.0	51.1	5.6	7.0	8.6
6	Moon's 24% Dairy Ration	13.2	25.5	24.0	3.4	5.0	43.9	5.9	10.0	8.1
1	Moon's Developing Grains	10.9	12.9	10.0	3.1	2.0	69.9	1.6	5.0	1.6
1	Moon's Growing Mash	12.0	17.8	17.0	5.2	4.0	50.1	5.0	7.0	9.9
3	Moon's Hominy Feed	9.8	10.6	10.0	8.4	5.0	64.9	3.9	6.0	2.4
2	Moon's Laying Mash	10.6	20.8	20.0	5.0	4.0	49.5	5.7	9.0	8.4
4	Moon's 90 Molasses Horse Feed	14.4	10.2	9.0	3.4	3.0	62.8	6.3	10.0	2.9
4	Moon's Stock Feed	10.2	11.1	9.0	5.4	3.0	57.0	11.6	12.0	4.7
6	Moon's Wheat Bran with Screenings	13.0	17.3	15.0	3.7	3.0	55.9	5.8	10.0	4.3
5	Moon's Fresh Ground Wheat Middlings	12.4	17.2	14.0	3.6	2.85	59.7	3.9	7.5	3.2
3	Moon's Fresh Ground Mixed Feed	12.4	14.9	15.0	2.7	4.0	61.2	5.2	10.0	3.6
2	Open Formula Dairy Ration	13.2	21.3	20.0	4.5	4.5	47.6	7.2	8.0	6.2
5	Special A Dairy 20% Ration	13.5	23.8	20.0	3.6	4.0	46.2	5.8	10.0	7.1
4	U. S. 24% Dairy Ration	12.6	22.2	24.0	3.5	3.0	45.0	9.3	12.0	7.4
5	U. S. 20% Dairy Ration	12.4	20.3	20.0	3.7	4.0	46.5	10.2	12.0	6.9
	Jas. F. Morse & Co.									
1	Morse's 60% Meat Scraps for Poultry[17]	7.8	60.6	60.0	8.3	8.0	—	—	—	21.3
4	Morse's 50% Meat Scraps for Poultry[18]	8.1	50.9	50.0	10.3	8.0	—	—	—	27.0
2	Morse's 45% Meat Scraps for Poultry[19]	6.8	46.7	45.0	10.1	8.0	—	—	—	34.0

[17]Phosphoric acid 8.2 [18]Phosphoric acid 11.2 [19]Phosphoric acid 13.0

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	National Biscuit Co., Shredded Wheat Bakeries									
1	Wheat Feed No. 1	8.2	10.3	10.0	1.6	1.5	76.3	2.0	3.5	1.6
	National Milling Branch of National Biscuit Co.									
1	Pure Wheat Bran	13.6	14.3	14.0	3.9	3.0	51.8	9.9	10.0	6.5
	Neumond Co.									
1	Neumond 28% Corn Distillers Grains	4.2	31.3	28.0	11.6	7.0	37.9	13.4	15.0	1.6
	New England Rendering Co.									
2	Boston Pure Cod & Haddock Meal[20]	6.7	65.4	62.0	5.1	3.0	--	—	—	23.5
	New England Grain Dealers Cooperative Association, Inc.									
2	New England Quality Chick Starter	11.1	19.2	17.5	5.2	4.0	49.3	6.1	7.0	9.1
3	New England Quality Complete Laying Mash	10.7	20.1	17.0	4.6	4.0	50.2	5.6	7.0	8.8
2	New England Quality 20% Dairy Feed	12.9	21.7	20.0	4.2	4.0	46.5	8.2	9.0	6.5
1	New England Quality 16% Dairy Feed	13.7	19.7	16.0	4.1	4.0	45.7	9.6	12.0	7.2
3	New England Quality Fitting Ration	12.7	14.4	10.0	3.4	4.0	55.6	9.4	9.0	4.5
2	New England Quality Growing Mash	10.7	19.8	17.5	4.8	4.0	48.9	5.9	7.0	9.9
5	New England Quality Horse Feed	13.9	11.2	10.0	3.1	3.0	62.5	6.0	9.0	3.3
1	New England Quality Laying Mash	10.1	20.2	20.0	4.6	4.0	48.6	5.6	7.0	10.9
1	New England Yankee 20% Dairy Ration	11.9	20.4	20.0	3.8	3.5	48.3	7.6	9.0	8.0
1	New England Yankee Egg Mash	12.4	19.5	18.0	5.0	4.0	49.3	5.1	8.0	8.7
1	New England Yankee Growing Mash	10.6	19.7	17.0	5.2	4.0	49.5	6.8	8.0	8.2
	New Richmond Roller Mills Co.									
2	Feeding Oatmeal	10.6	17.8	15.0	4.6	5.0	62.0	2.7	3.75	2.3
	Norris Grain Co.									
5	Expeller Process Soy Bean Oil Meal	12.0	42.8	41.0	5.4	4.5	29.6	4.8	7.0	5.4

	North East Feed Mill Co.									
1	North East Quality Feeding Oatmeal	11.3	16.0	15.0	3.8	4.0	63.2	3.6	3.75	2.1
	Northwestern Consolidated Milling Division of Standard Milling Co.									
2	Pure Wheat Bran	13.6	16.0	14.0	4.9	4.0	48.6	10.2	12.0	6.7
1	Wheat Standard Middlings with Screenings	11.4	17.6	15.0	5.3	4.0	53.6	7.8	9.5	4.3
1	Planet Feed	12.8	16.5	15.0	4.2	4.0	56.1	6.0	8.0	4.4
	Ogden Grain Co.									
4	"Biddy" Laying Mash	11.8	20.9	20.0	4.2	4.0	49.2	6.1	7.0	7.8
2	Cloverbloom 24% Dairy Feed	12.4	24.1	24.0	2.9	3.5	45.3	8.4	11.0	6.9
3	Cloverbloom 20% Dairy Feed	12.4	20.8	20.0	3.1	3.0	46.7	9.7	12.0	7.3
1	Ograinco Developer Feed	13.4	9.7	10.0	2.6	2.5	71.6	1.4	5.0	1.3
1	Ograinco Milk Ration	13.0	21.4	20.0	4.2	4.5	48.1	7.0	8.0	6.3
4	Pilgrim Cackle 20% Layer-Breeder	11.9	20.4	20.0	4.4	4.0	50.4	5.4	8.0	7.5
3	Pilgrim Chick and Broiler Ration	11.3	19.1	18.0	4.3	4.0	52.6	5.2	6.0	7.5
1	Pilgrim Complete Ration	12.0	15.8	15.0	4.1	4.0	53.7	6.2	6.5	8.2
1	Pilgrim 16% Dairy Feed	13.6	16.3	16.0	4.1	4.0	52.7	6.4	8.0	6.9
1	Pilgrim Fitting Ration	14.0	13.1	14.0	3.7	4.0	58.1	5.0	7.0	6.1
2	Pilgrim Growing Mash	11.5	17.4	16.0	4.9	4.0	52.9	5.4	8.0	7.9
4	Pilgrim Horse Feed	13.9	11.4	10.0	3.4	4.0	61.2	6.4	9.0	3.7
6	Pilgrim Special Laying Mash	12.7	18.7	18.0	4.2	4.0	50.7	5.6	7.0	8.1
2	Pilgrim Starter & Broiler Ration	12.8	20.3	18.0	4.2	4.0	50.0	4.6	6.0	8.1
4	Thrift 20% Dairy Feed (1938 registration)	12.3	20.8	20.0	3.5	4.5	50.5	6.0	8.0	6.9
2	Thrift 20% Dairy Feed	13.4	22.1	20.0	3.4	3.25	47.8	6.0	8.5	7.3
	Old Fort Mills, Inc.									
1	Old Fort Soy Bean Oil Meal	11.4	40.2	41.0	4.1	5.0	32.4	5.7	7.0	6.2
	Paetow Co.									
1	Malt Sprouts	9.6	26.6	24.0	1.2	1.0	43.2	13.0	16.0	6.4
	Park & Pollard Co.									
1	Bidwell Growing Feed	11.5	16.7	15.0	3.5	3.0	53.5	6.9	7.0	7.9
1	Bidwell Laying Mash	11.9	18.3	18.0	4.4	3.0	51.8	6.0	8.0	7.6
1	Doublex 24% Dairy Ration	10.4	24.2	24.0	4.3	3.5	44.7	7.4	11.0	9.0
4	Doublex 20% Dairy Ration	12.1	21.7	20.0	4.2	3.5	43.9	9.1	11.0	9.0
1	Doublex 16% Dairy Ration	11.7	15.3	16.0	3.5	3.5	50.9	9.7	12.0	8.9
1	Growing Feed	11.2	18.1	16.0	4.5	3.0	52.8	6.3	7.0	7.1
1	Hi-Valu Scratch Feed (Pellets)	13.4	13.0	10.0	3.7	2.5	58.3	5.4	8.0	6.2
2	Lay or Bust Dry-Mash	12.7	19.2	18.0	4.4	3.0	49.6	6.0	7.0	8.1
2	Manamar Doublex 20% Dairy Ration	12.3	19.9	20.0	4.2	3.5	44.7	9.4	11.0	9.5
2	Manamar Lay or Bust Dry-Mash	11.8	18.7	18.0	4.2	3.0	50.9	5.3	7.0	9.1
3	Milkmaid 24% Sweetened Dairy Ration	12.6	23.0	24.0	3.9	4.0	44.6	7.4	10.0	8.5

[20]Phosphoric acid 9.4

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Park & Pollard Co.—Concluded									
3	Milkmaid 20% Dairy Ration	12.8	21.0	20.0	4.1	4.0	48.1	6.8	10.0	7.2
2	Milkmaid 16% Dairy Ration	12.7	17.0	16.0	3.9	4.0	52.5	6.3	10.0	7.6
1	Park & Pollard Breeder Mash	11.6	20.1	20.0	4.7	4.5	51.1	5.4	7.0	7.1
1	Park & Pollard Chick Starter	10.8	17.6	17.0	3.9	3.5	53.7	5.4	6.0	8.6
1	Park & Pollard Dog Food	9.5	21.7	20.0	4.3	2.5	50.7	1.3	3.0	12.5
1	Park and Pollard Fleshing Pellets	10.7	17.7	16.0	4.3	4.0	55.6	5.3	7.0	6.4
2	Park & Pollard Heavy Wheat Mixed Feed	13.1	18.4	15.5	4.1	3.35	52.2	7.1	8.0	5.1
3	Park & Pollard Starter & Broiler Mash	12.0	19.9	18.0	4.5	4.0	50.3	4.8	6.0	8.5
2	Park & Pollard Stock Feed	11.3	10.9	9.0	4.2	4.0	58.8	8.1	12.0	6.7
1	Park & Pollard Turkey Grower	10.1	21.1	20.0	5.1	4.0	47.8	6.1	7.0	9.8
2	Yankee Horse Feed	13.8	11.6	10.0	3.6	3.5	60.7	6.5	9.0	3.8
	Geo. H. Parker Grain Co.									
2	Parker's Egg Mash	10.7	18.4	18.0	5.6	5.0	47.9	6.5	7.0	10.9
1	Parker's Special Dairy Ration	10.2	21.5	19.0	4.2	4.0	46.0	9.3	12.0	8.8
	Parrish & Helmbecker, Ltd.									
2	Parrheim Pure Wheat Bran	14.0	15.0	15.0	4.8	3.5	52.5	8.7	11.5	5.0
1	Parrheim Pure Wheat Shorts	13.1	15.5	16.0	5.0	5.0	57.4	5.6	8.0	3.4
	Patent Cereal Co.									
3	Hominy Feed	10.8	12.4	10.0	6.8	5.0	62.7	4.4	5.0	2.9
	Pecos Valley Alfalfa Mill Co.									
1	Pecos Special Alfalfa Meal	10.3	12.9	13.0	1.5	1.5	35.3	32.2	36.0	7.8
2	Peevee Alfalfa Leaf Meal	8.7	20.8	20.0	2.5	2.5	40.7	17.5	18.0	9.8
1	Velvet Brand Alfalfa Meal	5.6	21.3	17.0	2.3	1.5	40.7	21.1	27.0	9.0
	Penick & Ford Ltd., Inc.									
3	Douglas Corn Gluten Feed	12.0	26.9	25.0	1.5	1.5	46.2	7.1	8.5	6.3
	Perkins Oil Co.									
2	Golden Rod Brand Cotton Seed Meal	8.9	41.6	41.0	6.7	5.0	27.5	8.3	12.0	7.0

	Phaneuf & Son									
2	O-Boy Egg Mash	12.1	18.6	17.0	5.3	4.5	50.9	6.1	7.5	7.0
	Pillsbury Flour Mills Co.									
3	Pillsbury's Hard Wheat Standard B Middlings with Screenings	11.7	17.3	15.0	4.8	4.0	53.2	7.9	9.5	5.1
	Planters Nut & Chocolate Co.									
1	Planters "H" Peanut Meal	6.1	44.1	41.0	9.6	6.0	32.0	3.8	10.0	4.4
	W. N. Poffer Grain Stores, Inc.									
1	A. D. P. 24% Dairy Ration	11.4	25.6	24.0	4.6	4.0	46.5	5.7	10.0	6.2
	Pratt Food Co.									
1	Pratts Rabbit Pellets	12.6	17.2	14.0	4.0	3.0	52.0	7.4	10.0	6.8
	H. C. Puffer Co.									
1	Egg-Em-On Fine Chick Feed	13.8	8.7	10.0	2.4	2.0	72.4	1.3	5.0	1.4
2	Egg-Em-On Growing Feed	11.4	19.8	18.0	4.5	4.0	49.8	5.8	7.0	8.7
2	Egg-Em-On Laying Mash	10.8	21.3	20.0	4.2	4.0	46.8	6.2	9.0	10.7
2	Egg-Em-On Starting Mash	11.5	17.2	16.0	4.0	4.0	54.4	4.4	6.0	8.5
2	Producer Dairy Feed	11.1	22.9	20.0	4.6	3.5	46.6	6.9	10.0	7.9
2	Sweetened Producer Dairy Feed	11.4	20.6	20.0	4.1	3.5	44.8	11.6	12.5	7.5
	Quaker Oats Co.									
2	Bell Cow Wheat Bran	14.3	16.1	15.0	5.2	3.5	49.8	9.1	10.0	5.5
2	Bell Cow Wheat Shorts	14.2	18.0	15.0	5.7	4.0	51.1	6.7	8.0	4.3
2	Big Egg Laying Mash	11.1	20.0	20.0	5.1	4.0	51.5	6.4	8.0	5.9
1	Ful-O-Pep Chick Starter	10.4	18.8	17.0	6.0	4.5	52.0	5.2	7.0	7.6
1	Ful-O-Pep Crate Fattener	10.6	14.9	13.0	5.2	4.0	59.2	6.5	7.5	3.6
3	Ful-O-Pep Egg-Breeder Mash	9.7	20.8	20.0	6.3	4.5	48.5	5.7	8.0	9.0
3	Ful-O-Pep Growing Mash	9.8	19.6	19.0	5.7	5.0	52.7	5.2	7.0	7.0
2	Ful-O-Pep Turkey Grower	10.3	20.7	20.0	6.0	4.5	48.2	5.7	8.0	9.1
1	Ful-O-Pep Turkey Starter	9.6	25.9	26.0	6.1	5.0	45.4	4.7	7.0	8.3
1	Peterborough Oat Feed	7.0	7.2	4.0	2.0	1.5	50.8	27.0	32.0	6.0
1	Quaker Green Cross Horse Feed	11.8	11.0	10.0	3.2	2.5	60.9	8.3	12.0	4.8
1	Quaker Oat Mill Feed with 25% Molasses	11.4	5.4	4.0	1.2	1.0	53.6	21.8	23.5	6.6
2	Quaker Pig-N-Hog Feed	10.6	19.1	16.0	5.2	3.5	50.9	6.2	10.0	8.0
4	Quaker 24% Protein Dairy Ration	10.6	22.9	24.0	3.9	3.5	44.4	10.1	12.0	8.1
5	Quaker 20% Protein Dairy Ration	10.3	20.4	20.0	4.4	4.0	46.9	10.1	12.0	7.9
3	Quaker 16% Protein Dairy Ration	10.8	18.5	16.0	3.6	3.0	48.1	11.0	13.5	8.0
3	Quaker Sugared Schumacher Feed	10.3	12.5	10.0	3.8	3.0	57.6	8.9	12.0	6.9
3	Quaker Thorobred Horse Feed	14.5	10.4	10.5	3.9	3.5	63.1	4.6	8.0	3.5
1	Schumacher Calf Meal	9.2	19.7	18.0	5.7	5.0	53.9	4.2	5.0	7.3

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Quaker Oats Co.—Concluded									
3	Sugar Vim Oat Mill Feed	9.7	5.9	4.5	1.5	1.25	52.9	23.9	27.5	6.1
2	White Hominy Feed	11.8	9.9	10.0	6.7	5.0	65.5	3.8	5.0	2.3
	Ralston Purina Co.									
1	41% Protein Cottonseed Meal	7.7	40.0	41.0	6.4	5.0	30.0	9.2	13.0	6.7
3	Protena 20% Dairy Feed	12.5	22.4	20.0	3.7	3.5	45.1	8.2	12.0	8.1
1	Protena 16% Dairy Feed	11.9	18.5	16.0	3.7	3.5	44.6	11.1	14.0	10.2
5	Purina Broiler Chow	11.3	21.4	18.0	4.9	4.0	50.5	5.7	7.0	6.2
1	Purina Bulky Lax Chow	15.6	11.6	9.0	2.2	1.3	50.8	11.3	15.0	8.5
5	Purina Calf Startena	11.6	20.8	19.5	3.3	3.0	49.7	7.6	9.5	7.0
1	Purina Calf Starting Chow	10.5	28.0	27.0	4.5	3.2	47.9	3.4	5.0	5.7
2	Purina Chick Chow (Fine)	13.6	12.6	10.0	3.2	2.0	67.4	1.6	4.0	1.6
4	Purina Chick Growena	11.7	16.8	15.0	4.4	3.5	55.9	5.5	7.0	5.7
3	Purina Chick Startena	12.1	20.5	18.0	4.9	4.0	51.6	4.4	7.0	6.5
1	Purina Chicken Fatena	10.5	16.4	14.0	3.4	4.0	60.5	5.7	7.5	3.5
2	Purina Chicken Fatena Checkers	12.5	15.6	14.0	4.3	4.0	58.4	4.4	6.0	4.8
5	Purina Cow Chow 24%	12.7	25.4	24.0	5.1	4.0	43.4	6.2	11.0	7.2
7	Purina Cow Chow 20%	12.8	20.9	20.0	4.8	4.0	49.1	5.8	10.0	6.6
1	Purina Cow Chow 18%	13.8	20.2	18.0	3.8	4.0	49.3	6.5	10.0	6.4
2	Purina Cow Chow 16%	14.1	18.0	16.0	4.5	4.0	51.9	5.3	10.0	6.2
1	Purina Dog Chow (Checkers)	6.4	24.4	20.0	7.4	3.0	53.0	2.8	6.0	6.0
3	Purina Dry and Freshening Chow	13.5	15.7	12.5	2.7	2.5	48.9	10.3	14.0	8.9
1	Purina Duck Breeder Chow	11.9	21.4	19.5	5.1	4.0	51.7	3.6	5.5	6.3
5	Purina Family Flock Chow	11.1	19.7	18.0	4.4	3.5	49.5	6.0	8.0	9.3
1	Purina Heifer Growing Chow	13.6	16.3	14.0	3.4	2.5	50.6	8.6	14.0	7.5
1	Purina Lay Chow	9.3	22.4	21.0	5.7	4.0	46.4	6.8	8.0	9.4
4	Purina Layena (Complete Ration)	11.7	17.8	15.5	5.0	3.5	53.0	5.2	8.0	7.3
1	Purina Milking Cow Chow (20%)	10.1	21.3	20.0	3.7	4.0	49.1	8.0	12.0	7.8
6	Purina Milk Chow (For Dairy Cows) 18%	12.7	20.7	18.0	4.4	4.0	49.2	5.9	10.0	7.1
4	Purina Omolene	13.6	11.2	10.0	3.9	3.2	58.2	8.4	11.0	4.7
2	Purina Pig Growena	13.0	15.3	14.0	3.4	2.0	57.4	5.2	8.0	5.7
1	Purina Rabbit Chow	11.6	18.1	16.0	4.0	3.5	54.6	6.7	8.0	5.0
2	Purina Rabbit Chow (Complete Ration)	11.9	14.9	13.5	3.1	2.5	52.3	12.0	16.0	5.8
3	Purina Turkey Growena	11.5	18.9	18.0	4.6	4.0	53.3	5.4	7.0	6.3

1	Purina Turkey Growing Chow	10.3	23.0	21.0	5.4	3.5	47.8	5.6	8.0	7.9
1	Purina Turkey Startena	9.7	25.9	24.0	5.8	4.5	46.2	4.7	6.0	7.7
	John Reardon & Sons Division of Wilson & Co., Inc.									
2	Rearco 72 Feeding Beon[21]	3.1	6.4	5.0	0.4	—	—	—	—	83.7
2	Register Brand Cod & Haddock Fish Meal[22]	9.4	57.9	62.0	10.4	3.0	—	—	—	21.2
1	60% Register Brand Meat Scrap[23]	7.0	62.2	60.0	10.8	8.0	—	—	—	19.1
1	55% Register Brand Meat Scrap[24]	6.4	53.2	55.0	8.7	8.0	—	—	—	31.2
4	50% Register Brand Meat & Bone Scraps[25]	6.4	49.9	50.0	10.1	6.0	—	—	—	32.2
3	45% Register Brand Meat & Bone Scraps[26]	5.7	45.4	45.0	10.7	6.0	—	—	—	35.7
	D. F. Riley									
3	Riley's Chick & Broiler Ration	12.3	17.5	18.0	4.1	4.0	54.8	3.6	4.5	7.7
1	Riley's 20% Dairy Ration	12.5	21.5	20.0	4.5	4.5	46.8	7.6	9.0	7.1
1	Riley's Growing Mash	12.1	14.6	15.0	4.1	4.0	59.0	3.5	5.0	6.7
2	Riley's Laying Mash	11.8	20.6	20.0	4.6	4.5	49.5	4.4	6.0	9.1
	Rodney Milling Co.									
2	Heart of America Pure Wheat Bran	13.7	16.8	16.5	4.4	3.5	50.1	8.7	10.0	6.3
	Roy Grain Co.									
2	Roy's Chick Starter and Grower	11.9	19.6	18.0	4.7	4.5	48.7	4.7	7.0	10.7
2	Roy's Hen Mash	12.3	17.9	18.0	4.4	4.5	49.7	5.4	7.0	10.3
	N. Roy & Son									
1	Steamed Meat & Bone[27]	9.8	54.6	50.0	8.9	8.0	—	—		21.7
	H. M. Rubin Co.									
1	Rubco Meat Bone Scrap[28]	6.9	51.3	50.0	8.5	5.0	—	—	—	30.4
1	Rubco Meat Bone Scrap[29]	7.2	45.1	45.0	8.2	5.0	—			36.8
	Russell-Miller Milling Co.									
2	Hard Wheat Occident Mixed Feed	12.2	17.3	15.0	4.7	4.5	53.2	7.1	9.5	5.5
1	Hard Wheat Occident Standard Middlings	11.6	19.0	15.0	5.4	4.0	52.1	6.9	9.5	5.0
	Ryther & Warren									
1	Blue Tag Dairy Ration	11.5	21.8	20.0	4.3	4.5	47.5	8.7	10.0	6.2
1	Minot Chick Mash	11.9	19.0	18.0	4.5	4.0	53.6	3.9	5.0	7.1
1	Minot Milk Egg Mash	12.1	18.6	17.0	4.9	4.5	51.6	5.1	7.0	7.7
1	Minot Special Dairy Ration	11.4	19.8	20.0	4.9	4.5	49.8	8.2	10.0	5.9
	St. Albans Grain Co.									
1	Dried Beet Pulp	11.8	7.8	8.0	0.5	0.5	58.1	18.3	22.0	3.5
2	Brewers' Dried Grains	7.7	26.8	24.0	6.5	5.0	39.8	15.1	15.0	4.1
2	Corn Distillers' Dried Grains	7.8	28.2	28.0	12.0	7.0	38.9	11.5	14.0	1.6

[21]Phosphoric acid 34.1 [22]Phosphoric acid 8.7 [23]Phosphoric acid 7.5
[24]Phosphoric acid 12.5 [25]Phosphoric acid 12.4 [26]Phosphoric acid 14.0 [27]27Phosphoric acid 10.0 [28]Phosphoric acid 11.7 [29]Phosphoric acid 14.3

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	St. Albans Grain Co.—Concluded									
2	Hygrade 12 Fitting Ration	12.2	14.2	12.0	4.2	4.0	56.5	6.4	8.0	6.5
3	Hygrade Horse Feed	15.0	10.7	9.5	3.5	3.25	59.9	6.4	9.0	4.5
2	Hygrade 24 Milk Ration	12.7	23.5	24.0	4.1	4.0	45.4	6.5	8.5	7.8
1	Hygrade 20 Milk Ration	11.9	21.9	20.0	4.0	4.0	48.1	6.6	8.0	7.5
1	Hygrade 16 Milk Ration	12.4	18.1	16.0	4.0	4.0	52.5	7.2	8.5	5.8
4	Utility 20 Dairy Ration	11.7	21.1	20.0	3.5	3.5	46.7	9.3	12.0	7.7
2	Utility 16 Dairy Ration	12.2	17.4	16.0	3.1	3.0	49.3	11.8	13.0	6.2
1	Wirthmore Baby Chick Scratch	13.6	12.9	10.0	3.6	2.5	66.9	1.2	3.5	1.8
3	Wirthmore 25 Balanced Ration	12.8	25.7	25.0	4.5	4.5	43.9	6.6	8.5	6.5
2	Wirthmore Battery Ration	12.5	15.6	15.0	4.7	4.0	56.7	4.4	6.0	6.1
1	Wirthmore Breeder Mash	10.7	21.1	20.0	5.2	4.5	49.1	5.6	7.0	8.3
4	Wirthmore Calf Starter Meal (or Pellets)	11.3	25.0	24.0	5.2	5.5	50.0	3.3	4.0	5.2
2	Wirthmore Complete Chick Starter and Broiler Ration	11.9	20.7	17.5	4.4	4.0	50.4	4.6	5.5	8.0
2	Wirthmore Complete Egg Ration	11.4	16.3	15.0	4.4	4.0	56.8	5.2	6.0	5.9
1	Wirthmore Complete Growing Ration	11.6	14.4	14.0	4.4	3.75	59.7	4.4	6.0	5.5
1	Wirthmore Complete Laying Ration	11.2	16.3	15.0	5.0	4.0	56.5	4.1	5.0	6.9
3	Wirthmore Complete Rabbit Ration	12.4	14.5	14.0	3.2	3.0	52.0	11.6	12.0	6.3
3	Wirthmore 16 Dairy Ration	13.4	16.8	16.0	3.8	4.0	55.4	5.8	8.0	4.8
6	Wirthmore 14% Fitting Ration	13.2	16.1	14.0	4.7	4.0	53.5	6.4	7.0	6.1
1	Wirthmore Fleshing Pellets	13.6	15.8	15.0	4.6	4.5	54.5	4.8	6.5	6.7
1	Wirthmore Fleshing & Fattening Mash	12.1	14.6	15.0	4.6	4.5	60.5	3.8	6.0	4.4
1	Wirthmore Flour Middlings & Screenings	11.7	18.6	15.0	4.2	4.0	56.6	4.8	6.0	4.1
3	Wirthmore Fodder Greens	13.9	12.7	10.0	2.6	3.0	52.4	10.6	15.0	7.8
4	Wirthmore Horse Feed	14.3	10.1	9.8	3.6	3.25	61.9	6.0	9.0	4.1
2	Wirthmore Laying Pellets	11.9	16.3	15.0	4.6	4.0	56.5	5.1	6.0	5.6
1	Wirthmore Pig & Hog Feed	13.4	17.7	17.0	5.2	4.0	49.1	5.7	9.0	8.9
1	Wirthmore 32% Ration	11.0	32.7	32.0	4.9	4.0	36.4	7.0	8.0	8.0
2	Wirthmore Record Ration	12.5	20.3	20.0	4.5	4.5	51.4	5.9	8.5	5.4
8	Wirthmore Stock Feed	11.9	10.3	9.0	4.8	4.0	60.1	7.4	9.5	5.5
2	Wirthmore Turkey Fattening Ration	11.0	16.3	16.0	4.3	4.5	57.1	4.8	7.0	6.5
2	Wirthmore Wheat Feed	12.6	17.3	15.0	3.5	3.75	55.0	6.5	8.0	5.1

	Schenley Distillers Corporation									
3	Schenley's Mark of Merit Corn Distillers Dried Grains	7.1	28.1	28.0	7.4	8.0	44.5	10.7	13.0	2.2
	Schuyler Warehouse, Inc.									
1	S W Corn Distillers Dried Grains	5.4	27.5	28.0	5.4	6.5	48.2	11.4	13.0	2.1
	Schoeneck Farms, Inc.									
2	Keystone Brand Dehydrated Alfalfa Meal	6.0	17.0	17.0	2.4	2.0	39.9	26.2	25.0	8.5
	Sherwin Williams Co.									
4	S-W-C Pure Old Process 34% Linseed Meal	9.1	36.1	34.0	6.5	4.5	35.5	7.1	9.0	5.7
2	S-W-C Pure Old Process 32% Linseed Meal	9.0	32.8	32.0	6.8	4.5	37.9	7.5	9.0	6.0
	Sherwin-Williams Company of Canada, Ltd.									
3	Sherwin-Williams Screwpress Linseed Oil Cake Meal	7.5	37.8	34.0	6.6	5.5	36.2	6.8	8.0	5.1
	W. J. Small Co.									
1	Keystone 20% Fine Ground Dehydrated Alfalfa Meal	6.7	21.9	20.0	3.2	1.75	38.8	17.8	20.0	11.6
	Smith-Bodfish-Swift Co.									
1	Paramount Mash	10.9	20.5	20.0	5.0	3.5	47.9	6.1	8.0	9.6
	Snow Brokerage Co.									
1	Snowline Brand Alfalfa Leaf Meal	8.2	19.8	20.0	2.5	2.5	40.0	18.7	18.0	10.8
	Squier & Co.									
2	Squiers Buttermilk Egg Mash	11.7	18.8	18.0	4.1	5.0	52.7	5.9	7.0	6.8
	A. E. Staley Manufacturing Co.									
5	Staley's Corn Gluten Feed	11.9	28.3	25.0	2.2	1.5	44.6	6.1	8.0	6.9
1	Staley's Sweetened Gluten Feed	10.8	23.7	20.0	2.0	1.0	49.1	5.5	7.0	8.9
3	Staley's Soybean Oil Meal	11.7	43.8	41.0	4.2	4.0	29.7	5.2	7.0	5.4
	Standard Milling Co.									
2	Red Turkey Pure Wheat Bran	14.2	16.3	15.0	3.7	3.5	49.9	9.4	10.0	6.5
	State Mill & Elevator									
1	Dakota Maid Pure Bran	13.4	15.6	15.0	4.3	4.0	50.7	9.9	12.0	6.1
	F. W. Stock & Sons									
1	Litchfield Mixed Feed	11.7	14.1	15.0	4.1	4.0	58.5	6.8	8.0	4.8

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	David Stott Flour Mills, Inc.									
1	Columbus Heavy Mixed Wheat Feed & Screenings	13.6	16.6	14.5	3.8	3.7	55.2	6.2	8.5	4.6
1	Pennant Wheat Middlings & Screenings	13.7	18.6	15.0	4.5	4.0	51.7	6.7	9.0	4.8
2	Spring Wheat Bran & Wheat Screenings	14.7	17.3	14.5	4.2	4.0	49.5	8.3	12.5	6.0
	Stoughton Grain Co.									
1	Bay State Breeder & Laying Mash	12.4	20.8	20.0	4.7	4.0	47.7	5.4	7.0	9.0
	Stratton & Co.									
2	Stratton's Bran & Screenings	13.6	14.4	14.0	4.3	4.0	51.6	8.0	11.0	8.1
2	Stratton's Standard Middlings	13.6	14.8	14.0	4.5	4.0	57.1	5.6	9.0	4.4
3	Stratton's Mixed Feed	13.5	14.4	13.5	4.2	4.11	56.0	6.9	7.13	5.0
2	Stratton's "24" Stock Feed	13.1	7.7	7.5	3.3	2.83	61.8	10.9	14.43	3.2
	Sunset Feed & Grain Co.									
1	Sunset Brand Feed (A Product of Milk)	8.6	26.5	25.0	1.3	—	—	—	—	23.4
	C. H. Symmes & Co.									
1	The Ideal Dairy Ration	12.9	21.2	20.0	4.2	3.5	47.7	6.8	8.5	7.2
	Tioga Mills, Inc.									
3	Tasty Laying Food	11.3	21.6	20.0	4.9	4.0	47.5	5.9	7.5	8.8
2	Ti-O-Ga E-Gee 20% Dairy Feed	12.4	21.8	20.0	4.5	4.0	46.1	7.5	10.0	7.7
2	Ti-O-Ga Starter and Grower	12.0	18.9	16.5	4.2	4.0	51.4	5.9	7.5	7.6
	Toledo Soybean Products Co.									
1	Super-Duo Soy Bean Oil Meal	12.1	43.3	41.0	4.7	4.5	29.3	5.3	7.0	5.3
	Jacob Trinley & Sons									
1	Favorite Growing Mash	11.6	17.0	16.0	3.6	3.5	54.5	6.9	7.0	6.4
3	Favorite Laying Mash	11.4	19.0	18.0	4.5	4.0	48.1	7.4	8.0	9.6
1	Real 85% Horse Feed	14.4	10.5	10.0	4.2	3.0	61.2	6.0	11.0	3.7
1	Supreme 85% Horse Feed	15.4	9.0	9.0	3.5	3.0	60.9	7.3	11.0	3.9
2	Trinley's 24% Dairy Feed	13.1	25.2	24.0	3.8	3.5	44.0	6.9	11.0	7.0
2	Trinley's 20% Dairy Feed	13.6	20.1	20.0	3.6	3.5	48.8	7.0	11.0	6.9

	Union Supply & Milling Corporation									
2	Sunshine Brand Alfalfa Leaf Meal	8.3	20.0	20.0	2.9	3.0	40.3	17.7	18.0	10.8
	United Cooperative Farmers, Inc.									
1	United Farmers Broiler Ration	11.6	17.8	15.0	3.8	4.0	58.8	3.8	5.0	4.2
1	United Farmers Fattener	12.7	17.1	16.0	3.8	4.0	59.4	3.3	5.0	3.7
2	United Farmers Fitting Ration	11.9	17.2	12.0	4.4	3.5	54.7	6.1	7.0	5.7
2	United Farmers Grower	11.3	19.1	17.0	4.4	4.0	51.5	6.2	7.0	7.5
2	United Farmers Horse Feed	14.0	12.9	10.5	3.5	3.5	59.0	5.6	6.5	5.0
1	United Farmers Layer	11.4	20.4	18.5	4.8	4.5	48.9	6.1	7.5	8.4
1	United Farmers Milk Egg Mash	10.2	21.0	17.0	4.8	4.0	49.6	6.4	6.5	8.0
2	United Farmers Milk Pep	10.7	25.0	24.0	4.8	4.5	45.8	7.3	8.0	6.4
2	United Farmers Milkmaker	11.9	22.5	20.0	4.4	4.5	48.3	6.7	8.0	6.2
2	United Farmers Starter	11.2	19.2	17.0	4.3	4.0	53.8	4.4	6.0	7.1
	United Farmers Cooperative Creamery Association, Inc.									
1	Dried Skim Milk[30]	7.3	36.1	32.0	1.4	0.5	—	—	—	7.8
	Union Starch & Refining Co.									
2	Union Corn Gluten Feed	11.6	25.8	25.0	2.4	1.0	49.1	5.8	8.0	5.3
4	Union Corn Gluten Meal	9.3	44.0	43.0	1.1	1.0	42.7	1.6	3.0	1.3
	Unity Feeds, Inc.									
4	Paycheck 24% Dairy Ration	12.5	24.7	24.0	4.5	4.0	43.0	8.2	11.0	7.1
3	Paycheck 20% Dairy Ration	11.6	22.3	20.0	4.3	4.0	46.3	8.4	11.0	7.1
1	Paycheck Laying Mash	12.6	18.4	18.0	5.0	3.0	53.3	2.1	8.0	8.6
1	Unity Chick Scratch Feed	14.4	12.0	10.0	2.8	2.5	68.2	1.1	3.0	1.5
1	Unity Complete Starting and Broiler Mash	12.8	19.3	17.0	4.7	3.5	49.8	4.1	5.5	9.3
1	Unity Growing Mash	12.5	17.7	14.0	5.3	3.0	52.3	6.0	7.0	6.2
1	Unity Laying Mash	12.8	20.5	18.0	5.0	3.0	47.8	5.6	7.0	8.3
1	Unity Pig and Hog Ration	13.6	19.7	17.0	4.6	4.0	45.4	5.7	8.0	11.0
1	Unity Turkey Starting and Growing Mash	11.8	22.0	22.0	5.3	4.0	44.3	5.9	7.0	10.7
	Van Iderstine Co.									
1	Vico Quality Meat and Bone Scraps[31]	7.7	50.1	50.0	5.3	3.0	—	—	—	32.0
	Arthur Ventura Grain Co.									
2	Ventura Laying Mash	11.6	17.5	19.0	5.2	5.0	50.7	5.7	7.0	9.3
	Vita-Fresh Dog Food Corp.									
1	Vita-Best Dog Food	6.9	30.5	26.67	3.9	4.5	40.5	2.1	3.36	16.1
	Vitality Mills, Inc.									
1	True Value Dog Cubes	9.9	24.4	20.0	4.5	3.0	44.0	4.0	4.5	13.2
1	Vitality Dog Kibbles	10.0	22.1	20.0	2.3	2.0	56.5	1.5	2.0	7.6
1	Vitality Goat Pellets	11.1	16.2	16.0	4.2	5.0	53.4	7.7	6.0	7.4

[30]Lactose 47.4 [31]Phosphoric acid 10.2

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Voigt Milling Co.									
2	Voigt's Pure Winter Wheat Bran	12.4	15.0	14.0	4.2	3.0	55.4	7.6	10.0	5.4
	Hiram Walker & Sons, Inc.									
1	Corn Distillers' Dried Grains	13.6	29.8	29.0	8.0	6.0	37.8	6.5	9.0	4.3
	Ward Milk Products Division, Kraft-Phenix Cheese Corporation									
6	Ward's Pure Dried Skim Milk[32]	8.1	33.8	32.0	1.8	1.0	—	—	—	8.0
	C. P. Washburn Co.									
1	"Made Right" Balanced Ration	11.9	22.3	22.0	4.4	5.0	46.7	7.9	10.0	6.8
1	"Made Right" Complete Broiler Ration	10.6	19.4	18.0	4.3	4.5	52.1	6.8	7.0	6.8
3	"Made Right" Complete Layer	11.5	18.5	16.0	4.1	4.5	54.0	4.9	7.0	7.0
3	"Made Right" 16% Dairy	11.7	18.5	16.0	4.3	4.0	53.0	7.3	9.0	5.2
3	"Made Right" Dry Mash	10.5	20.9	20.0	4.7	4.5	48.4	6.8	7.0	8.7
2	"Made Right" Fitting Ration	13.5	15.8	13.5	4.0	3.5	52.9	6.4	9.0	7.4
1	"Made Right" Horse Feed	15.4	10.2	8.0	3.2	5.0	64.3	4.3	10.0	2.6
3	"Made Right" Mixed Feed[33]	12.4	16.2	15.0	3.8	4.0	56.0	6.8	8.0	4.8
2	"Made Right" Starting and Growing Feed	10.4	20.6	20.0	4.5	5.0	49.5	6.6	7.0	8.4
3	"Made Right" Sweet Dairy Feed	11.7	21.8	20.0	4.2	4.0	48.8	7.0	8.0	6.5
1	"Made Right" White Stock Feed	10.5	10.3	8.0	4.6	3.5	62.5	8.7	10.0	3.4
	Wayne County Grangers Feed Corporation									
2	Clyde 20% Dairy Feed	13.0	22.3	20.0	4.0	4.0	45.2	8.5	10.0	7.0
2	Cornell Mash	11.8	19.9	18.0	5.9	4.0	46.7	5.9	10.0	9.8
1	Galen 24% Dairy Feed	13.3	23.1	24.0	4.0	4.0	43.8	8.6	10.0	7.2
1	Milkproducer 24% Dairy Feed	12.1	24.1	24.0	4.4	4.0	43.1	9.2	10.0	7.1
1	Superior Growing Mash	11.8	18.8	17.5	4.3	4.0	49.6	5.3	7.0	10.2
1	Superior Horse Feed	14.8	10.6	10.0	3.2	3.0	62.0	6.4	9.0	3.0
1	Superior Turkey Grower & Fattener	10.6	21.2	20.0	5.1	4.0	47.1	6.2	7.0	9.8
1	Universal Horse Feed	15.2	11.8	10.0	2.3	3.0	60.0	7.1	9.0	3.6
	H. K. Webster Co.									
1	Blue Seal All-Mash Growing Ration	12.7	15.4	14.5	5.1	4.0	56.4	4.1	5.0	6.3
3	Blue Seal Breeders' Mash	11.9	19.9	20.0	5.2	4.0	49.4	4.2	6.0	9.4

2	Blue Seal Broiler Ration	13.0	20.6	20.0	5.2	4.5	48.7	4.3	6.0	8.2
2	Blue Seal Chick Builder	12.4	18.8	18.0	5.0	4.0	50.5	4.7	6.5	8.6
2	Blue Seal Chick Starter	11.6	21.0	18.0	4.9	4.0	50.6	4.8	6.0	7.1
3	Blue Seal "20" Dairy Ration	12.3	22.2	20.0	4.1	4.0	47.5	7.1	9.0	6.8
2	Blue Seal "18" Dairy Ration	12.9	19.7	18.0	4.0	4.5	49.9	6.0	9.0	7.5
3	Blue Seal Egg Mash	12.6	20.0	19.0	4.9	4.5	49.0	4.3	6.0	9.2
2	Blue Seal Fitting Ration	14.3	15.2	13.0	4.1	4.5	54.7	5.4	7.0	6.3
3	Blue Seal Fleshing Pellets	11.4	15.6	15.0	4.9	5.0	57.0	4.2	4.0	6.9
2	Blue Seal Growing Mash	12.6	18.7	18.0	4.8	4.0	50.9	4.5	6.5	8.5
2	Blue Seal Hom-Mix 24% Dairy Ration	12.0	24.3	24.0	4.3	4.5	44.6	8.5	9.0	6.3
2	Blue Seal Horse Feed	15.1	10.3	10.5	2.9	3.5	64.5	3.9	7.5	3.3
2	Blue Seal Improved All-Mash Ration	13.0	17.3	15.0	5.3	4.5	53.6	3.8	4.5	7.0
3	Blue Seal Improved Balanced Ration	12.5	25.5	24.0	4.4	4.5	44.2	7.1	8.5	6.3
2	Blue Seal Laying Mash	12.4	20.5	20.0	5.1	4.0	48.8	4.4	6.0	8.8
2	Blue Seal Special 20% Dairy Ration	12.5	20.9	20.0	4.0	4.5	45.9	9.5	10.0	7.2
1	Blue Seal Stock Feed	10.5	14.5	8.5	4.0	3.5	55.4	10.1	11.0	5.5
	Western Condensing Co.									
1	Peebles Lacto-G Dried Whey	8.4	12.4	12.0	2.1	0.5	—	—	—	8.9
	Wilber Feed Co., Inc.									
1	W Corn Distillers Dried Grains	8.0	29.6	28.0	6.8	7.0	41.5	12.3	13.0	1.8
	Est. M. G. Williams									
2	Williams' Balanced Ration	11.3	22.5	20.0	4.2	4.0	48.0	7.4	12.0	6.6
2	Williams' Chick Starter	11.1	18.4	17.0	4.5	4.0	53.7	4.0	7.0	8.3
2	Williams' Growing Feed	11.7	17.5	15.0	4.2	4.0	53.1	5.5	7.0	8.0
2	Williams' Laying Mash	11.8	17.2	16.0	4.5	4.0	52.6	5.2	7.0	8.7
2	Williams' Stock Feed	11.8	11.4	10.0	4.2	4.0	59.1	9.1	12.0	4.4
	Wilmington Packing Co.									
4	Wilpaco White Fish Meal[34]	9.1	65.1	63.0	5.2	2.0	—	—	—	21.0
	Stanley Wood Grain Co.									
2	Bliss Dairy Ration	11.1	22.3	22.0	4.1	5.0	49.1	5.8	10.0	7.6
2	Preferred Complete Growing Ration	12.7	15.5	15.0	4.0	4.0	59.4	4.1	5.0	4.3
2	Preferred Complete Laying Ration	12.7	15.3	15.0	4.4	4.0	57.3	3.7	5.0	6.6
2	Preferred Complete Starting & Broiler Ration	11.3	19.5	18.5	4.7	4.0	52.7	4.2	5.0	7.6
2	Preferred Laying Mash	11.3	20.3	20.0	5.0	4.5	49.9	5.4	7.0	8.1
2	Woods Dairy Ration	12.7	21.0	20.0	3.7	4.0	48.7	7.2	10.0	6.7
	Worcester Grain & Coal Co.									
1	Just Right Dairy Ration 24%	11.4	25.6	24.0	4.7	4.0	44.4	7.2	9.0	6.7
1	Just Right Dairy Ration 20%	12.5	20.9	20.0	4.5	4.0	48.5	7.5	9.0	6.1
1	Just Right Growing Mash	11.9	17.6	16.0	4.9	4.0	52.2	4.8	6.0	8.6
1	Just Right Laying Mash	11.9	19.1	18.0	4.9	4.0	49.7	5.0	7.0	9.4

[32]Lactose 48.3 [33]Made of wheat products and oat feed [34]Phosphoric acid 8.1

Feeds Not Conforming to Guarantees

(Shortages of less than one per cent in protein or fat or an excess of less than one per cent in fiber are not listed)

Samples Collected	Samples Not Conforming to Guarantee	Manufacturer and Brand	Protein Deficiency Per cent	Fat Deficiency Per cent	Fiber Excess Percent
		Ashcraft-Wilkinson Co.			
2	2	"Texsun" Kuder Citrus Pulp	—	2.2	—
		"Texsun" Kuder Citrus Pulp	—	2.8	—
		E. W. Bailey & Co.			
2	1	Capital Dairy Ration	1.3	—	—
1	1	Pennant Growing Feed	—	—	1.6
1	1	Pennant Laying Mash	—	—	1.1
		Barber & Bennett, Inc.			
1	1	Double Value 24% Dairy Feed	1.5	—	—
		Beacon Milling Co., Inc.			
4	1	Beacon Sweet "24"	1.2	—	—
		Berkshire Coal & Grain Co., Inc.			
3	2	Berkshire Hills Sweet Dairy Feed	—	1.2	—
		Berkshire Hills Sweet Dairy Feed	—	1.1	—
2	2	Greylock 20% Molasses Ration	2.3	—	—
		Greylock 20% Molasses Ration	1.4	—	—
		A. B. Caple Co.			
1	1	20% Capex Dehydrated Alfalfa Leaf Meal	—	—	1.9
		Consolidated Rendering Co.			
2	1	Corenco 45% Meat and Bone Scrap	1.9	—	—
		Nicolas Courcy Grain Co.			
2	2	Courcy Dairy Feed	1.2	—	—
		Courcy Dairy Feed	1.6	—	—
		Dehydrating Process Co.			
2	1	"Protine Brand" White Fish Meal	2.1	—	—
		Delaware Mills, Inc.			
4	1	Indian Laying Mash	1.1	—	—
		Dewey Bros. Co.			
5	1	Corn 3D Distillers Dried Grains	2.7	2.5	—
		J. L. Dunnell & Son			
1	1	Excel 20 Per Cent Dairy Feed	—	1.0	—
1	1	Excel Mash	—	1.1	—
1	1	Full Value Mixed Feed	2.4	1.9	—
		Elmore Milling Co., Inc.			
2	1	Elmore Turkey Growing Mash	1.5	—	—
2	1	Elmore Turkey Starting Mash	3.3	—	—
		Farm Service Co.			
3	1	C Growing Mash	2.6	—	—
2	1	Diamond A Dairy Feed	—	—	1.2
3	1	Lawrence Cow Ration	2.0	—	—
3	1	N. E. C. Laying Mash	1.3	—	—
3	1	North Star 16% Dairy Feed	—	—	1.8
		Flory Milling Co., Inc.			
1	1	Flory's 24% Butterfat Dairy Feed	1.3	—	—
		Goode Grain Co.			
3	3	Goode Laying Mash	—	—	1.9
		Goode Laying Mash	—	—	1.1
		Goode Laying Mash	—	—	1.7
3	2	Goode Starting & Growing Mash	—	—	1.7
		Goode Starting & Growing Mash	—	—	1.0
		D. H. Grandin Milling Co.			
4	1	Grandin's Broiler Mash	—	1.2	—
		Humphreys-Godwin Co.			
9	1	Dixie Brand Cottonseed Meal	1.3	—	—

Feeds Not Conforming to Guarantees—Continued

(Shortages of less than one per cent in protein or fat or an excess of less than one per cent in fiber are not listed)

Samples Collected	Samples Not Conforming to Guarantee	Manufacturer and Brand	Protein Deficiency Per cent	Fat Deficiency Per cent	Fiber Excess Percent
		Independent Tallow Co.			
3	1	Egg-a-day Brand 50% Meat & Bone Scrap	1.1	—	—
		Maritime Milling Co., Inc.			
2	1	Hi-Test Dairy Feed 24% Pro. Sweetened	1.6	—	
		Meadow Brook Farms			
1	1	Meadow Brook Farm Brand Superior Dehydrated Alfalfa Meal	3.1	—	—
		Middlesex County Farm Bureau Association			
4	1	Farm Bureau Brand Developer	1.3	—	—
3	1	Farm Bureau Brand Turkey Growing Ration	1.4	—	1.1
		Mississippi Valley Grain & Feed Co.			
7	3	Kent Cottonseed Meal	1.3	—	—
		Kent Cottonseed Meal	1.1	—	—
		Kent Cottonseed Meal	1.3	—	—
		Geo. Q. Moon & Co., Inc.			
1	1	Complete Starter and Broiler Mash	—	—	1.1
6	6	Moon's 24% Dairy Ration	—	1.3	—
		Moon's 24% Dairy Ration	—	2.0	—
		Moon's 24% Dairy Ration	—	1.0	—
		Moon's 24% Dairy Ration	—	1.5	—
		Moon's 24% Dairy Ration	—	2.0	
		Moon's 24% Dairy Ration	—	1.0	—
4	1	Moon's Stock Feed	—	—	1.3
6	1	Moon's Wheat Bran with Screenings	1.5	—	—
3	3	Moon's Fresh Ground Mixed Feed	—	1.4	
		Moon's Fresh Ground Mixed Feed		1.3	
		Moon's Fresh Ground Mixed Feed		1.2	
4	3	U. S. 24% Dairy Ration	2.3	—	
		U. S. 24% Dairy Ration	2.8		
		U. S. 24% Dairy Ration	1.6	—	
		Jas. F. Morse & Co.			
4	1	Morse's 50% Meat Scraps for Poultry	1.1	—	
		Ogden Grain Co.			
4	2	Thrift 20% Dairy Feed	—	1.3	—
		Thrift 20% Dairy Feed	—	1.3	—
		Park & Pollard Co.			
3	1	Milkmaid 24% Sweetened Dairy Ration	1.3	—	—
		H. C. Puffer Co.			
1	1	Egg-Em-On Fine Chick Feed	1.3	—	—
		Quaker Oats Co.			
4	1	Quaker 24% Protein Dairy Feed	1.7	—	—
		Quaker 24% Protein Dairy Feed	1.7	—	—
		John Reardon & Sons Division of Wilson & Co., Inc.			
1	1	55% Register Brand Meat Scrap	1.8	—	—
4	2	50% Register Brand Meat & Bone Scraps	2.8	—	—
		50% Register Brand Meat & Bone Scraps	1.2	—	—
3	1	45% Register Brand Meat & Bone Scraps	1.7	—	—
		D. F. Riley			
3	1	Riley's Chick & Broiler Ration	1.3	—	—
		Schenley Distillers Corporation			
3	2	Schenley's Mark of Merit Corn Distillers Dried Grains	—	1.3	—
		Schenley's Mark of Merit Grain Distillers Dried Grains	—	2.6	—
		Schuyler Warehouse, Inc.			
1	1	S W Corn Distillers Dried Grains	—	1.1	—

Feeds Not Conforming to Guarantees—Concluded

(Shortages of less than one per cent in protein or fat or an excess of less than one per cent in fiber are not listed)

Samples Collected	Samples Not Conforming to Guarantee	Manufacturer and Brand	Protein Deficiency Per cent	Fat Deficiency Per cent	Fiber Excess Percent
		Schoeneck Farms, Inc.			
2	1	Keystone Brand Dehydrated Alfalfa Meal	—	—	2.0
		Squier & Co.			
2	1	Squiers Buttermilk Egg Mash	—	1.0	—
		Arthur Ventura Grain Co.			
2	2	Ventura Laying Mash	2.0	—	—
		Ventura Laying Mash	1.0	—	—
		Vitality Mills, Inc.			
1	1	Vitality Goat Pellets	—	—	1.7
		C. P. Washburn Co.			
1	1	"Made Right" Horse Feed	—	1.8	—
		Stanley Wood Grain Co.			
2	1	Bliss Dairy Ration	—	1.4	—

Average Analyses of Unmixed By-Products

(Collected between September 1, 1938, and April 1, 1939)

	Number of Samples	Water (Percent)	Protein (Percent)	Fat (Percent)	Nitrogen Free Extract (Percent)	Fiber (Percent)	Ash (Percent)
Cottonseed Meal	31	8.2	41.0	6.2	28.9	9.2	6.5
Linseed Meal	16	9.2	35.6	6.0	36.5	7.2	5.5
Soy Bean Meal	22	11.6	42.8	4.8	30.1	5.0	5.7
Gluten Meal	8	9.5	44.1	1.9	41.4	1.9	1.2
Gluten Feed	24	12.2	26.0	2.4	46.8	6.4	6.2
Distillers Dried Grains	16	7.1	29.0	8.8	41.7	11.3	2.1
Brewers Dried Grains	16	8.6	27.6	6.1	39.6	14.5	3.6
Wheat Standard Middlings	19	12.5	17.3	4.9	53.5	7.0	4.8
Wheat Flour Middlings	9	12.6	17.1	4.7	56.2	5.4	4.0
Red Dog Flour	9	12.3	17.4	3.6	60.6	3.2	2.9
Wheat Mixed Feed	29	12.4	15.8	3.9	56.5	6.5	4.9
Wheat Bran	64	13.1	15.7	4.2	52.3	8.6	6.1
Corn Meal	24	14.9	9.1	4.2	68.6	1.8	1.4
Ground Oats	43	11.3	12.4	3.8	58.9	10.2	3.4
Hominy Feed	23	11.1	11.1	6.9	64.1	4.1	2.7
Dried Beet Pulp	5	11.1	8.8	0.6	57.2	18.6	3.7
Barley Meal	4	12.0	12.7	2.2	63.7	6.6	2.8

Certified Ingredients

Allied Mills, Inc.

Economy 20% Dairy Feed
Soybean oil meal, cottonseed meal, corn meal, corn distillers' dried grains, brewers' dried grains, corn gluten feed, ground oats, wheat bran, cane molasses, 2% ground limestone, 1% salt, 0.5% steamed bone meal, 0.03% iron oxide, 0.0005% potassium iodide.

Wayne-Amco 24% Dairy Ration
Corn gluten meal, corn distillers' dried grains, brewers' dried grains, corn gluten feed, old process linseed oil meal, soybean oil meal, cottonseed meal, ground oats, corn meal and hominy meal, wheat bran, cane molasses, 0.5% steamed bone meal, 1.5% ground limestone, 1.0% salt, 0.03% iron oxide, 0.0005% potassium iodide.

Wayne-Amco 20% Dairy Ration
Cottonseed meal, brewers' dried grains, corn distillers' dried grains, ground oats, corn gluten feed, corn meal and hominy meal, soybean oil meal, corn gluten meal, old process linseed oil meal, wheat bran, cane molasses, 0.5% steamed bone meal, 1.5% ground limestone, 1.0% salt, 0.03% iron oxide, 0.0005% potassium iodide.

Wayne-Amco 16% Dairy Ration
Corn distillers' dried grains, cottonseed meal, brewers' dried grains, corn gluten feed, old process linseed oil meal, corn meal, hominy meal, soybean oil meal, ground oats, wheat bran, cane molasses, 0.5% steamed bone meal, 1.0% ground limestone, 1.0% salt, 0.03% iron oxide, 0.0005% potassium iodide, crimped oats.

Wayne Chick & Broiler Ration
Dried skim milk, animal liver meal, meat scraps, fish meal, ground yellow corn, corn gluten meal, fine ground oats, wheat standard middlings, wheat bran, soybean oil meal, dehydrated alfalfa meal, 1.5% ground limestone, 0.04% iron oxide, 0.0005% potassium iodide, 0.04% manganese sulphate, 0.25% salt and fortified sardine oil.

Wayne Chick Starter
Dried skim milk, animal liver meal, meat scraps, fish meal, wheat standard middlings, corn meal, corn gluten meal, fine ground oats, dehydrated alfalfa meal, soybean oil meal, wheat bran, 1.5% ground limestone, 0.06% iron oxide, 0.0007% potassium iodide, 0.06% manganese sulphate, 0.25% salt and fortified sardine oil.

Wayne Egg & Breeder Mash
Dried skim milk, animal liver meal, meat scraps, fish meal, wheat standard middlings, wheat bran, corn meal, corn gluten meal, corn gluten feed, dehydrated alfalfa meal, soybean oil meal, fine ground oats, 2% ground limestone, 0.06% iron oxide, 0.0007% potassium iodide, 0.25% salt, 0.06% manganese sulphate and fortified sardine oil.

Wayne Flushing Mash
Dried whey, meat scraps, fish meal, soybean oil meal, wheat standard middlings, corn meal, wheat bran, 1.8% ground limestone, 0.03% iron oxide, 0.03% manganese sulphate, 0.0003% potassium iodide and 0.13% salt.

Wayne Growing Mash
Dried skim milk, animal liver meal, meat scraps, fish meal, wheat standard middlings, corn meal, corn gluten meal, fine ground oats, dehydrated alfalfa meal, soybean oil meal, wheat bran, 1.5% ground limestone, 0.06% iron oxide, 0.0007% potassium iodide, 0.06% manganese sulphate, 0.25% salt and fortified sardine oil.

Wayne Mash Concentrate
Dried skim milk, animal liver meal, fish meal, meat scraps, soybean oil meal, corn gluten meal, corn gluten feed, dehydrated alfalfa meal, 4% ground limestone, 0.15% iron oxide, 0.002% potassium iodide, 0.5% salt, 0.15% manganese sulphate, and fortified sardine oil.

Wayne 26% Mash Supplement
Dried skim milk, animal liver meal, meat scraps, fish meal, wheat standard middlings, wheat bran, corn gluten meal, corngluten feed, dehydrated alfalfa meal, soybean oil meal, 3% ground limestone, 0.15% iron oxide, 0.002% potassium iodide, 0.15% manganese sulphate, 0.5% salt and fortified sardine oil.

Wayne Poultry Fattener
Ground yellow corn, corn germ oil meal, white hominy feed, rolled oats, fine ground oats, wheat standard middlings, wheat red dog, old process linseed oil meal, 1% salt, 4% ground limestone.

Wayne Turkey Growing Mash
Dried skim milk, animal liver meal, meat scraps, fish meal, wheat standard middlings, corn meal, fine ground oats, dehydrated alfalfa meal, soybean oil meal, corn gluten meal, wheat bran, 2% ground limestone, 0.06% iron oxide, 0.0007% potassium iodide, 0.06% manganese sulphate, 0.25% salt and fortified sardine oil.

Wayne Turkey Starting Mash
Dried skim milk, animal liver meal, meat scraps, fish meal, wheat standard middlings, corn gluten meal, corn meal, dehydrated alfalfa meal, soybean oil meal, wheat bran, fine ground oats, 2% ground limestone, 0.06% iron oxide, 0.0007% potassium iodide, 0.06% manganese sulphate, 0.25% salt and fortified sardine oil.

A. P. Ames Co.

Ames Complete Cycle Ration
Corn meal, wheat middlings, wheat bran, pulverized whole oats, meat scraps, cod fish meal, dried milk, alfalfa leaf meal, calcium carbonate, salt, fortified cod liver oil.

Ames Egg Mash
Corn meal, wheat middlings, meat scraps, pulverized whole oats, wheat bran, alfalfa leaf meal, dried milk, cod fish meal, calcium carbonate, salt, fortified cod liver oil.

Ames 20% Milk Maker
Gluten, corn meal (and, or hominy), wheat bran, wheat middlings, linseed meal (and, or soy bean oil meal, and, or cotton seed meal), oat feed, calcium carbonate and salt.

Ames Starter and Broiler Ration
Corn meal, wheat middlings, 10% dried skim milk, pulverized whole oats, wheat bran, alfalfa leaf meal, cod fish meal, meat scraps, calcium carbonate, salt, concentrated cod liver oil.

Arcady Farms Milling Co.

Arcady 24% Open Formula Production Ration
Wheat bran, hominy feed, o. p. linseed oil meal, ground oats, cottonseed meal, corn gluten meal, corn gluten feed, distillers corn dried grains, soy bean oil meal, molasses, 1% bone meal, 1% calcium carbonate from limestone, 1% salt.

Arcady 20% Open Formula Production Ration
What bran, hominy feed, o. p. linseed oil meal, ground white oats, corn gluten feed, cottonseed meal, corn gluten meal, distillers corn dried grains, molasses, 1% bone meal, 1% calcium carbonate from limestone, 1% salt.

Arcady Sweet 16 Dairy Feed
Wheat bran, soy bean oil meal, corn gluten meal, o. p. linseed oil meal, distillers corn dried grains, brewers dried grains, corn gluten feed, cleaned ground & bolted wheat screenings, ground & bolted oat mill feed (oat hulls, oat shorts, oat middlings), cottonseed meal, molasses, 1% calcium carbonate from limestone, ½ of 1% salt.

E. W. Bailey & Co.

Bailey's 20% Special
Gluten feed, standard wheat middlings, oat-meal mill by-products (oat middlings, oat hulls, oat shorts), corn meal, wheat bran, cottonseed meal, molasses, salt, edible bone meal, calcium carbonate, soybean meal.

Capital Dairy Ration
Corn gluten feed, linseed oil meal, hominy feed, 43% cottonseed meal, ground oats, wheat bran, corn meal, soybean meal, edible bone meal, calcium carbonate, fine salt and molasses.

Favorite Dairy Ration
White hominy feed, cottonseed meal, linseed oil meal, corn meal, ground oats, wheat bran, soybean meal, corn gluten feed, standard wheat middlings, edible bone meal, calcium carbonate, fine salt and molasses.

Barber & Bennett, Inc.

Double Value 24% Dairy Feed
Ground heavy oats, ground heavy barley, hominy feed or corn meal, soybean oil meal, cottonseed meal, corn distillers' grains, corn gluten feed, brewers' dried grains, wheat bran (may contain mill run screenings), babassu oil meal, cane molasses, calcium carbonate from limestone, salt.

Fort Orange Brand Broiler Mash
Dried skim milk, meat scraps, dried whey, alfalfa leaf meal, corn meal, pulverized heavy oats, soybean oil meal, wheat bran (may contain mill run screenings), wheat middlings, steamed bone meal, cod liver oil, calcium carbonate from limestone, ½ of 1% salt, potassium iodide, not less than .0017% iodine, manganese sulphate.

Fort Orange Brand Chic-Razer Mash
Dried skim milk, meat scraps, fish meal, dried whey, alfalfa leaf meal, ground hulled oats, corn meal, pulverized heavy oats, soybean oil meal, pure wheat bran, wheat flour middlings, steamed bone meal, cod liver oil, calcium carbonate from limestone, ½ of 1% salt, potassium iodide, not less than .0017% iodine, manganese sulphate.

Fort Orange Brand 32% Dairy Feed
Soybean oil meal, cottonseed meal, corn distillers grains, corn gluten feed, corn gluten meal, wheat bran (may contain mill run screenings), cane molasses, calcium carbonate from limestone, steamed bone meal, 2% salt, potassium iodide, not less than .0035% iodine.

Fort Orange Brand 24% Dairy Feed
Ground heavy oats, ground heavy barley, hominy feed or corn meal, linseed oil meal, soybean oil meal, cottonseed meal, corn distillers' grains, brewers' dried grains, corn gluten feed, wheat bran (may contain mill run screenings), cane molasses, calcium carbonate from limestone, steamed bone meal, 1% salt, potassium iodide, not less than .0017% iodine.

Fort Orange Brand 20% Dairy Feed
Ground heavy oats, ground heavy barley, hominy feed or corn meal, linseed oil meal, soybean oil meal, cottonseed meal, corn distillers' grains, brewers' dried grains, corn gluten feed, wheat bran (may contain mill run screenings), dried beet pulp, cane molasses, calcium carbonate from limestone, steamed bone meal, 1% salt, potassium iodide, not less than .0017% iodine.

Fort Orange Brand 16% Dairy Feed
Crushed heavy oats, hominy feed or corn meal, linseed oil meal, soybean oil meal, corn distillers' grains, brewers' dried grains, wheat bran (may contain mill run screenings), cane molasses, calcium carbonate from limestone, steamed bone meal, 1% salt, potassium iodide, not less than .0017% iodine.

Fort Orange Brand Golden Test Ration
Crushed heavy oats, corn meal or hominy, corn distillers' grains, wheat bran, dried beet pulp, linseed oil meal (pea size), soybean oil meal (pea size), corn gluten feed, cane molasses, steamed bone meal, potassium iodide, not less than .0017% iodine, 1% salt.

Fort Orange Brand Growing Mash
Dried skim milk, meat scraps, fish meal, dried whey, dehydrated alfalfa meal, corn meal, pulverized heavy oats, ground heavy barley, soybean oil meal, wheat bran (may contain mill run screenings), wheat flour middlings, steamed bone meal, cod liver oil, calcium carbonate from limestone, 1% salt, potassium iodide, not less than .0035% iodine, manganese sulphate.

Fort Orange Brand Laying Mash
Dried skim milk, meat scraps, fish meal, dried whey, dehydrated alfalfa meal, corn meal, pulverized heavy oats, ground heavy barley, soybean oil meal, wheat bran (may contain mill run screenings), wheat flour middlings, steamed bone meal, cod liver oil, calcium carbonate from limestone, 1% salt, potassium iodide, not less than .0035% iodine.

Fort Orange Brand Turkey Grower
Dried skim milk, meat scraps, dehydrated alfalfa meal, corn meal, pulverized heavy oats, soybean oil meal, corn gluten meal, wheat bran (may contain mill run screenings), wheat flour middlings, calcium carbonate from limestone, ½ of 1% salt, manganese sulphate.

Fort Orange Brand Turkey Starter
Dried skim milk, meat scraps, fish meal, alfalfa leaf meal, ground hulled oats, corn meal, soybean oil meal, corn gluten meal, wheat bran (may contain mill run screenings), wheat flour middlings, cod liver oil, calcium carbonate from limestone, ½ of 1% salt, manganese sulphate.

Beacon Milling Co., Inc.

Auburn Dairy Feed
Corn gluten feed, old process linseed oil meal, soy bean oil meal, ground oats, corn meal, ground grain screenings, cottonseed meal, wheat bran, ground barley, corn distillers' dried grains, molasses, 1% salt, 1% steamed bone meal.

Beacon Sweet "24"
Old process linseed oil meal, soy bean oil meal, cotton seed meal, corn gluten meal, corn gluten feed, corn distillers' dried grains, wheat bran, wheat middlings, ground oats, ground barley, molasses, 1% salt, 1% calcium carbonate, 1% steamed bone meal.

Beacon "20"
Old process linseed oil meal, cottonseed meal, soy bean oil meal, corn gluten feed, corn gluten meal, corn meal, wheat bran, wheat middlings, corn distillers' dried grains, ground oats, ground barley, 1% salt, 1% steamed bone meal.

Beacon Broiler Feed
Dried skim milk, liver meal, meat scraps, fish meal, ground yellow corn, pulverized heavy oats, wheat bran, wheat red dog, wheat germ meal, soy bean oil meal, corn gluten meal, dehydrated alfalfa leaf meal, fortified cod liver oil, 2½% calcium carbonate, ½% salt, anhydrous manganese sulphate 35 p.p.m.

Beacon Complete Starting Ration
Dried skim milk, liver meal, meat scrap, fish meal, ground yellow corn, ground hulled oats, pulverized heavy oats, pulverized heavy barley, wheat bran, wheat flour middlings, dehydrated alfalfa leaf meal, wheat germ meal, fortified cod liver oil, 2% calcium carbonate, ½% salt, anhydrous manganese sulphate 35 p.p.m.

Beacon Duck Starting Pellets
Dried skim milk, meat scrap, fish meal, wheat bran, wheat red dog, corn meal, pulverized heavy barley, ground oat groats, dehydrated alfalfa leaf meal, soy bean oil meal, fortified cod liver oil, 2% calcium carbonate, ¼% salt, anhydrous manganese sulphate 70 p.p.m.

Beacon "22" Egg Mash
Dried buttermilk, dried skim milk, liver meal, meat scrap, fish meal, pulverized heavy barley, pulverized heavy oats, corn meal, dehydrated alfalfa leaf meal, wheat bran, wheat flour middlings, wheat germ meal, fortified cod liver oil, 3% calcium carbonate, ½% fine salt, 1% protozyme (an enzyme supplying product derived from biochemically processed cereals), anhydrous manganese sulphate 70 p.p.m.

Beacon "18" Growing Mash
Dried skim milk, liver meal, meat scrap, fish meal, pulverized heavy oats, pulverized heavy barley, corn meal, wheat red dog, dehydrated alfalfa leaf meal, wheat bran, wheat flour middlings, wheat germ meal, fortified cod liver oil, 2% calcium carbonate, ½% salt, anhydrous manganese sulphate 70 p.p.m.

Beacon "16" Growing Mash
Dried skim milk, liver meal, fish meal, meat scrap, pulverized heavy oats, corn meal, pulverized heavy barley, wheat bran, wheat flour middlings, dehydrated alfalfa leaf meal, wheat germ meal, fortified cod liver oil, 2% calcium carbonate, ½% salt, anhydrous manganese sulphate 70 p.p.m.

Beacon "20" Laying Mash
Dried buttermilk, dried skim milk, liver meal, fish meal, meat scrap, corn meal, dehydrated alfalfa leaf meal, wheat bran, wheat flour middlings, pulverized heavy barley, pulverized heavy oats, wheat germ meal, fortified cod liver oil, 3% calcium carbonate, ½% salt, anhydrous manganese sulphate 70 p.p.m.

Beacon Pheasant Starter and Grower
Dehydrated alfalfa leaf meal, dried buttermilk, dried skim milk, liver meal, soy bean oil meal, meat scrap, fish meal, pulverized heavy oats, pulverized heavy barley, ground yellow corn, wheat bran, wheat germ meal, fortified cod liver oil, ½% fine salt, 3% calcium carbonate, anhydrous manganese sulphate 45 p.p.m.

Beacon Test Cow Ration
Old process linseed oil meal, cottonseed meal, corn distillers' dried grains, soy bean oil meal, corn gluten feed, corn meal, wheat bran, crushed oats, crushed barley, molasses, 1% salt, 1% steamed bone meal.

Beacon Turkey Fitting Ration
Old process linseed oil meal, soybean oil meal, corn gluten meal, alfalfa meal, crushed barley, cracked corn, crimped oats, molasses, 1% salt.

Beacon Turkey Growing Feed
Dried skim milk, liver meal, dehydrated alfalfa leaf meal, meat scrap, fish meal, wheat bran, wheat flour middlings, wheat red dog, corn gluten meal, soy bean oil meal, pulverized heavy oats, pulverized heavy barley, corn meal, wheat germ meal, fortified cod liver oil, 4% calcium carbonate, ½% salt, 1% protozyme (an enzyme supplying product derived from biochemically processed cereals), anhydrous manganese sulphate 70 p.p.m.

Berkshire Coal & Grain Co., Inc.

Berkshire Hills Sweet Dairy Feed
Wheat bran, cottonseed meal, gluten feed, linseed oil meal, corn meal, ground oats, brewers' grain, cane molasses, calcium carbonate and salt.

Green Mountain Dairy Ration
Wheat bran, cottonseed meal, corn gluten feed, linseed oil meal, corn meal, ground oats and barley, calcium carbonate and salt.

Green Mountain Laying Mash
Wheat bran, wheat middlings, linseed oil meal, corn meal, fine ground oats, alfalfa meal, meat scraps, bone meal, fish meal, dried skim milk, calcium carbonate, salt, Nopco XX concentrated cod liver oil.

Borden Grain Co.

Borden's Dairy Feed
Wheat bran, wheat middlings, corn meal or hominy, gluten meal, gluten feed, cottonseed meal, soy bean oil meal, linseed oil meal, calcium carbonate, iodine, bone meal, salt.

Borden's Laying Mash
Corn meal, wheat bran, wheat middlings, ground oat meal, dried milk, dried whey, Lactoflavin concentrate, alfalfa leaf meal, fish meal, meat scrap, soy bean oil meal, cod liver oil, calcium carbonate, manganese, iodine, salt.

Borden's Starter and Growing Feed
Corn meal, wheat bran, wheat middlings, ground oat meal, alfalfa leaf meal, soy bean oil meal, meat scrap, fish meal, gluten meal, dried milk, dried whey, Lactoflavin concentrate, cod liver oil, calcium carbonate, manganese, iodine, bone meal, salt.

George B. Brown Corporation

Brown's Dairy Feed
Wheat bran, hominy feed, oat feed, cottonseed meal, calcium carbonate, distillers' grain, corn meal, o. p. linseed meal, corn gluten feed, molasses, bone meal, salt

Brown's Egg Mash
Corn meal, wheat midds, ground oats, wheat bran, meat scraps, bone meal, dried milk, leaf alfalfa meal, charcoal, calcium carbonate, salt, and Nopco XX concentrated cod liver oil.

Community Feed Stores, Inc.

Community Chick Mash
Greenmelk (dehydrated cereal grasses preserved in condensed buttermilk), yellow corn meal, white hominy, feeding oatmeal, pure wheat bran, wheat middlings, red dog, soybean meal, alfalfa leaf meal, dried skim milk, pure fish meal, choice meat scraps 50%, oyster shell meal, cod liver meal, salt, cod liver oil.

Community 20% Dairy Ration
Corn distillers dried grains, 41% cottonseed meal, soya bean meal, corn gluten feed, yellow corn meal or hominy, pure ground oats, pure wheat bran, molasses, salt, calcium carbonate.

Hilltop 20% Dairy Ration
41% Cottonseed meal, soya bean meal, corn gluten feed, hominy or yellow corn meal, Vim oat mill feed, pure wheat bran, corn distillers dried grains, cane molasses, calcium carbonate, salt.

Nicolas Courcy Grain Co.

Courcy Dairy Feed
Bran, middlings, Buffalo gluten, Diamond gluten, ground oats, 41% cottonseed meal, linseed meal, soy bean oil meal, meal or hominy meal, calcite flour, salt, with or without molasses.

Courcy Eastern Laying Mash
Meal, bran, pulverized or ground oats, 45% beef scrap, middlings, ground wheat, alfalfa leaf meal, calcite flour, fish meal, dry skim milk, shell meal, fine salt, certified cod liver oil.

Cover & Palm Co.

C & P Grade A Laying Mash
Dried milk, meat scraps, fish meal, corn meal, wheat bran, wheat middlings, pulverized oats, soy bean meal, alfalfa leaf meal, linseed meal, Vitadine, salt, calcium carbonate, potassium iodide, cod liver oil.

C & P Growing Mash
Dried milk, meat scraps, fish meal, pulverized oats, corn meal, wheat bran, wheat middlings, alfalfa leaf meal, soy bean meal, Vitadine, hominy feed, salt, bone meal, potassium iodide, calcium carbonate, cod liver oil.

C & P Starter and Broiler Ration
Dried milk, meat scraps, fish meal, ground hulled oats, soy bean meal, corn meal, wheat bran, wheat red dog flour, wheat middlings, pulverized oats, Vitadine, alfalfa leaf meal, salt, bone meal, potassium iodide, calcium carbonate, cod liver oil.

Curley Grain and Fuel Co.

Crystal All Grain Starting Food
Ground corn, ground oatmeal, red dog flour, ground wheat, wheat bran, linseed oil meal, alfalfa leaf meal, dried milk, white fish meal, steamed edible bone meal, powdered charcoal, calcium carbonate, salt, cod liver oil concentrate.

Crystal Complete Growing Feed
Ground corn, ground wheat, bran, middlings, oatmeal, oat groats, linseed oil meal, alfalfa leaf meal, meat meal, fish meal, dried skim milk, bone meal, calcium carbonate, salt, cod liver oil concentrates.

Crystal Complete Laying Mash
Ground barley, ground corn, ground wheat, oat groats, bran, middlings, alfalfa leaf meal, linseed oil meal, fish meal, dried skim milk, calcium carbonate, bone meal, salt, cod liver oil concentrates.

Crystal 24% Dairy Ration
Corn gluten meal, corn gluten feed, cottonseed meal, linseed oil meal, distillers grains, hominy feed, ground barley, ground oats, bran and middlings with mill run of screenings, edible bone meal, salt, calcium carbonate.

Crystal 20% Dairy Ration
Corn gluten feed, yellow corn meal, hominy feed, bran and middlings with mill run of screenings, cottonseed meal, linseed oil meal, beet pulp, steamed edible bone meal, calcium carbonate, salt, molasses, white fish menl.

Crystal 16% Dairy Ration
Corn gluten feed, yellow corn meal, hominy feed, wheat bran and middlings with mill run of screenings, cottonseed meal, oat mill by-products (oat middlings, oat shorts, oat hulls), soya bean meal, linseed oil meal, dried beet pulp, calcium carbonate, edible bone meal, salt, fortified cod liver oil.

Crystal Egg Mash
Linseed oil meal, yellow hominy feed, yellow corn meal, bran and middlings with mill run of screenings, feeding oat meal, red dog, alfalfa poultry greens, beef scraps, fish scraps, steamed bone meal, dried skim milk, salt, calcium carbonate.

Crystal Growing Mash
Cod liver oil, dried skim milk, meat scraps, white fish meal, steamed edible bone meal, alfalfa poultry greens, red dog flour, bran and mddliings with mill run of screenings, feeding oatmeal, yellow hominy feed, yellow corn meal, calcium carbonate, salt, linseed oil meal.

Crystal Starting Food for Broilers
Hominy feed, yellow corn meal, ground oat groats, bran, middlings, red dog flour, alfalfa poultry greens, meat scraps, white fish meal, dried skim milk, pure dry buttermilk, ground wheat, linseed oil meal, calcium carbonate, steamed edible bone meal, salt, cod liver oil.

Delaware Mills, Inc.

Delaware Sweet 24% Dairy Feed
Cane molasses, corn gluten feed, corn gluten meal, linseed oil meal, cottonseed meal, soy bean oil meal, corn distillers grains, hominy feed, peanut oil meal, corn meal, wheat bran, wheat middlings, salt and phosphatic calcium carbonate.

Delaware Sweet 20% Dairy Feed
Cane molasses, linseed oil meal, corn gluten feed, corn gluten meal, cottonseed meal, soybean oil meal, corn distillers' grains, peanut oil meal, wheat bran, wheat middlings, hominy feed, ground oats, ground barley, phosphatic calcium carbonate and salt.

Frank Diauto

Circle D Egg Ration
Meal, bran, flour middlings, ground oats, milk, fish meal, 45% scraps, oyster shell meal, cod liver oil, salt, dicalcium phosphate, ground wheat, feeding oat meal, alfalfa meal.

Diauto's Complete Broiler Ration
Feeding oat meal, meal, bran, red dog, 50% scraps, dried milk, alfalfa meal, cod liver oil, fish meal, salt, shell meal, dicalcium phosphate, manganese sulphate.

Diauto's Dairy Feed
Gluten feed, corn meal, ground oats, bran, linseed meal, cottonseed meal, salt.

Diauto's Fancy Chick Growing Mash
Bran, middlings, pulverized ground oats, feeding oat meal, 50% scraps, dried milk, soy bean meal, oyster shell meal, alfalfa meal, fish meal, salt, cod liver oil, corn meal, manganese sulphate.

Diauto's Special Egg Mash
Linseed meal, cod liver oil, meal, middlings, ground oats, feeding oat meal, oyster shell meal, 50% scraps, fish meal, milk, soy bean meal, ground barley, alfalfa meal, salt, bran.

F. Diehl & Son, Inc.

Diehl's Dairy Feed
Bran, brewers grains, cottonseed meal, gluten, linseed meal, meal or hominy, oat meal mill by-products, ground barley, ground oats, salt, cattle bone, calcite flour, soya bean.

Diehl's Dry Mash
Alfalfa, bran, cattle bone, charcoal, Diamond gluten, calcite flour, linseed meal, salt, meal, middlings, red dog, fish scraps, meat scraps, ground oats, dried milk, cottonseed, cod liver oil, soya bean.

Dietrich & Gambrill, Inc.

All Purpose Complete Ration
Coarse ground yellow corn, coarse ground wheat, pulverized oats, flour middlings, wheat bran, alfalfa leaf meal, dried buttermilk, meat scrap, fish meal, soy bean meal, steamed bone meal, 1% calcium carbonate, 1% salt, cod liver oil, potassium iodide, manganese sulphate.

D & G Breeder Mash
Wheat bran, wheat middlings, yellow corn meal, pulverized oats, alfalfa leaf meal, fish meal, meat scraps, dried buttermilk, cod liver oil, soy bean meal, bone meal, 1% calcium carbonate, 1% salt, potassium iodide, manganese sulphate.

D & G Broiler Mash
Ground wheat, pulverized oats, wheat bran, wheat flour middlings, alfalfa leaf meal, yellow corn meal, fish meal, meat scraps, dried buttermilk, soy bean meal, gluten meal, cod liver oil, bone meal, salt, calcium carbonate, potassium iodide, manganese sulphate

D & G Dairy Feed
Cottonseed meal, peanut meal, linseed meal, gluten feed, corn feed meal, wheat bran, ground grain screenings, clipped oat by-products, oat middlings, oat shorts, oat hulls, molasses, 1% bone meal, 1% calcium carbonate, 1% salt, potassium iodide.

D & G Turkey Growing Mash
Corn meal, wheat bran, wheat middlings, pulverized oats, oat meal, alfalfa meal, soy bean meal, linseed meal, meat scrap, dried buttermilk, bone meal, 1% calcium carbonate, 1% salt, potassium iodide, manganese sulphate.

Frederick Laying Mash
Wheat bran, wheat middlings, corn feed meal, pulverized oats, ground barley, gluten meal, meat scrap, fish meal, alfalfa leaf meal, soy bean meal, bone meal, 1% calcium carbonate, 1% salt, dried buttermilk, potassium iodide, cod liver oil, manganese sulphate.

East Bridgewater Farmers Exchange, Inc.

Exchange Dairy Feed
Old process linseed meal, cottonseed meal, corn gluten meal, corn gluten feed, corn distilers' dried grains, yellow corn meal or hominy feed, ground oats, dried beet pulp, soybean oil meal wheat bran, wheat standard middlings, brewers' dried grains, steamed bone meal, cane molasses, salt.

Exchange Growing Feed
Fortified cod liver oil, dried skimmed milk, meat scraps, fish meal, alfalfa leaf meal, yellow corn meal, wheat bran, wheat standard middlings, ground oats, calcium carbonate, salt.

Exchange Mash Feed
Fortified cod liver oil, dried skimmed milk, meat scraps, fish meal, alfalfa leaf meal, yellow corn meal, wheat bran, wheat standard middlings, ground oats, calcium carbonate, salt.

Eastern Grain Co.

Eastern 24% Dairy Ration Sweetened
Old process linseed meal, soy bean oil meal, cottonseed meal, corn gluten meal, corn gluten feed, corn distillers' dried grains, brewers' dried grains, yellow corn meal, ground oats, ground barley, wheat bran, wheat standard middlings, cane molasses, calcium carbonate, salt.

Eastern 20% Dairy Ration Sweetened
Old process linseed meal, soybean oil meal, cottonseed meal, corn gluten meal, corn gluten feed, corn distillers' dried grains, brewers' dried grains, yellow corn meal, ground oats, ground barley, wheat bran, wheat standard middlings, cane molasses, calcium carbonate, salt.

Eastern States Farmers' Exchange

Eastern States All-Mash Developer
Yellow corn meal, wheat bran, wheat flour middlings, ground oats, ground barley, 41 per cent protein soybean oil meal, alfalfa leaf meal, 50 per cent protein meat scraps, 58 per cent protein fish meal, cane molasses, corn gluten meal, dried whey, oyster shell meal, iodized salt, dicalcium phosphate, fortified sardine oil with 2 per cent wheat germ oil, manganese sulphate.

Eastern States Breeder Mash
Yellow corn meal, ground oats, wheat flour middlings, wheat bran, 50 per cent protein meat scraps, alfalfa leaf meal, 58 per cent protein fish meal, ground barley, 41 per cent protein soybean oil meal, oyster shell meal, dried skimmed milk, dried whey, corn gluten meal, dicalcium phosphate, iodized salt, fortified sardine oil with 1% wheat germ oil, manganese sulphate.

Eastern States Duck Breeder
Yellow corn meal, wheat bran, wheat low-grade feed flour, ground oats, 50 per cent protein meat scraps, alfalfa leaf meal, dried skimmed milk, 41 per cent protein soybean oil meal, corn gluten meal, oyster shell meal, dicalcium phosphate, iodized salt, fortified sardine oil with 1% wheat germ oil, manganese sulphate.

Eastern States Duck-Fat
Yellow corn meal, wheat bran, wheat flour middlings, 50 per cent protein meat scraps, 41 per cent protein soybean oil meal, corn gluten meal, oyster shell meal, dicalcium phosphate, iodized salt.

Eastern States Duck-Start & Grow
Yellow corn meal, wheat bran, wheat flour middlings, 50 per cent protein meat scraps, ground oats, alfalfa leaf meal, dried skimmed milk, oyster shell meal, dicalcium phosphate, fortified sardine oil, manganese sulphate.

Eastern States Egg Mash
Yellow corn meal, wheat bran, wheat flour middlings, ground oats, 50 per cent protein meat scraps, ground barley, 58 per cent protein fish meal, 41 per cent protein soybean oil meal, alfalfa leaf meal, oyster shell meal, corn gluten meal, iodized salt, fortified sardine oil, manganese sulphate

Eastern States Fattener
Yellow corn meal, corn oil meal, ground oat groats, dried skimmed milk, wheat standard middlings, wheat red dog, ground oats, 41 per cent protein soybean oil meal, iodized salt.

Eastern States Flushing
Wheat bran, yellow corn meal, dried whey, dried skimmed milk, 50 per cent protein meat scraps, 58 per cent protein fish meal, ground oat groats, alfalfa leaf meal, oyster shell meal, iodized salt, fortified sardine oil.

Eastern States Fulpail
Yellow corn feed meal, ground oats, wheat bran, 41 per cent protein soybean oil meal, distillers' corn dried grains, cane molasses, 41 per cent protein cottonseed meal, prime quality, corn gluten feed, palm kernel oil meal, babassu kernel oil meal, wheat germ oil meal, dicalcium phosphate, iodized salt.

Eastern States Milkmore
41 Per cent protein soybean oil meal, 41 per cent protein cottonseed meal, prime quality, ground oats, wheat bran, distillers' corn dried grains, cane molasses, yellow corn feed meal, corn gluten feed, palm kernel oil meal, babassu kernel oil meal, wheat germ oil meal, dicalcium phosphate, iodized salt.

Eastern States Sixteen
Yellow corn feed meal, ground oats, wheat bran, distillers' corn dried grains, cane molasses, corn gluten feed, 41 per cent protein cottonseed meal, prime quality, 41 per cent protein soybean oil meal, palm kernel oil meal, babassu kernel oil meal, wheat germ oil meal, dicalcium phosphate, iodized salt.

Eastern States Starting and Broiler
Yellow corn meal, wheat flour middlings, wheat bran, ground oat groats, alfalfa leaf meal, 50 per cent protein meat scraps, 58 per cent protein fish meal, 41 per cent protein soybean oil meal, cane molasses, corn gluten meal, dried whey, dried skimmed milk, oyster shell meal, iodized salt, dicalcium phosphate, fortified sardine oil with 2 per cent wheat germ oil, manganese sulphate.

Eastern States Turkey-Breeder
Yellow corn meal, wheat bran, 50 per cent protein meat scraps, wheat flour middlings, dried skimmed milk, alfalfa leaf meal, 41 per cent protein soybean oil meal, ground oats, 58 per cent protein fish meal, corn gluten meal, oyster shell meal, dicalcium phosphate, iodized salt, fortified sardine oil with 1 per cent wheat germ oil, manganese sulphate

Eastern States Turkey-Fat
Yellow corn meal, wheat bran, wheat flour middlings, 50 per cent protein meat scraps, ground oats, 41 per cent protein soybean oil meal, alfalfa leaf meal, corn gluten meal, dried skimmed milk, ground oat groats, oyster shell meal, iodized salt.

Michael W. Ellis

The Ellis Dairy Feed
Corn meal, wheat middlings, wheat bran, gluten meal, hominy feed, gluten feed, corn distillers grains, cottonseed meal, linseed oil meal, ground oats, calcite flour, salt, edible bone meal. (Wheat feeds may contain screenings not exceeding mill run)

The Ellis Poultry Mash
Corn meal, wheat middlings, wheat bran, alfalfa leaf meal, hominy feed, gluten feed, rolled oats or feeding oat meal, edible bone meal, cod liver oil, beef scraps, dried skim milk or buttermilk, salt, charcoal, calcite flour. (Wheat feeds may contain screenings not exceeding mill run)

The Ellis Special Dairy Feed
Hominy feed, gluten feed, wheat bran, wheat middlings, Sugared Vim feed, cottonseed meal, gluten meal, salt, calcite flour, alfalfa meal. (Wheat feeds may contain screenings not exceeding mill run.)

Elmore Milling Co., Inc.

Elmore Battery Growing Mash
Alfalfa leaf meal, corn meal, wheat bran, wheat middlings, pulverized heavy oats and barley, meat and bone meal, fish meal, gluten meal, dried skim milk, cod liver oil, soybean oil meal, manganese oyster shell flour, salt.

Elmore Chixsaver
Dried skim milk, wheat flour middlings, wheat bran, corn meal, alfalfa leaf meal, oat flour, meat & bone meal, fish meal, cod liver oil, corn gluten meal, fine table salt, manganese oyster shell flour, cod liver meal.

Elmore Complete Growing Ration
Corn meal (No. 2 yellow), wheat bran, wheat middlings, ground oats, ground barley, alfalfa leaf meal, meat and bone meal, fish meal, corn gluten meal, dried skim milk, soybean oil meal, cod liver oil, salt, manganese oyster shell flour.

Elmore Complete Laying Ration
Alfalfa leaf meal, cod liver oil, corn meal, fish meal, wheat middlings, dried skim milk, pulverized heavy oats, meat scraps, wheat bran (may contain mill run screenings), manganese oyster shell flour, cod liver meal, ground barley, soybean oil meal, gluten meal, salt.

Elmore Complete Starter-Broiler
Corn gluten meal, yellow corn meal, wheat bran, wheat middlings, oat meal flour, meat and bone meal, dried buttermilk, alfalfa leaf meal, fish meal, soybean oil meal, cod liver oil, manganese oyster shell flour, salt.

Elmore Egg Mash
Dried skim milk, meat meal, second clear wheat flour, pure ground oats, wheat middlings, corn meal (No. 2 yellow), wheat bran, alfalfa leaf meal, fish meal, bone meal, cod liver oil, salt, manganese oyster shell flour.

Elmore Fleshing Pellets
Corn meal, corn oil meal, pulverized heavy oats, standard middlings, low grade wheat flour, corn gluten meal, soybean oil meal, dried skim milk, cod liver oil, salt, meat scraps.

Elmore Growing Mash
Dried buttermilk, meat meal, bone meal, wheat middlings, wheat bran, low grade wheat flour, alfalfa leaf meal, corn meal, pulverized oats, corn gluten meal, fish meal, manganese oyster shell flour, cod liver oil, ground barley, soybean oil meal, salt.

Elmore M. A. C. Laying Mash
Alfalfa leaf meal, wheat bran (may contain mill run screenings), corn meal, fish meal, wheat middlings, dried skim milk, ground heavy oats, meat scraps, oyster shell flour, cod liver oil, soybean oil meal, salt.

Elmore Milk Grains "Twenty-Four"
Corn distillers grains, wheat bran, old process oil meal, corn meal or hominy feed, barley malt sprouts, corn gluten feed, cotton seed meal, dried brewers' grains, molasses, soybean oil meal, calcium carbonate, salt.

Elmore Milk Grains "Twenty"
Wheat bran, dried brewers' grains, barley malt sprouts ,cotton seed meal, soybean oil meal, hominy feed, cane molasses, corn distillers grains, corn gluten feed, linseed oil meal, dried tomato pulp, wheat middlings, calcium carbonate, salt.

Elmore's Sweet Digesto Dairy Feed
Corn gluten feed, cotton seed meal, wheat bran, pulverized wheat screenings, oat meal mill by-products (oat hulls, oat middlings and oat shorts), cane molasses, salt.

Elmore Turkey Breeder Mash
Wheat germ meal, yellow corn meal, wheat bran, wheat middlings, ground heavy oats, alfalfa leaf meal, meat and bone meal, fish meal, dried skim milk, cod liver oil, cod liver meal, manganese oyster shell flour, salt.

Elmore Turkey Growing Mash
Yellow corn meal, wheat bran, wheat middlings, ground heavy oats, ground barley, alfalfa, leaf meal, soybean oil meal, corn gluten meal, dried skim milk, meat scraps, fish meal, manganese oyster shell flour, cod liver oil, salt.

Elmore Turkey Starting Mash
Yellow corn meal, wheat bran, wheat middlings, pulverized heavy oats, wheat germ meal, alfalfa leaf meal, soybean oil meal, corn gluten meal, dried skim milk, meat scraps, fish meal, manganese oyster shell flour, cod liver oil, cod liver meal, salt.

Emco Feed
Wheat bran, wheat middlings, linseed oil meal, citrus pulp, cane molasses, ground oats, corn gluten feed, corn meal or hominy feed, cotton seed meal, calcium carbonate, salt.

Granger 24% Dairy Ration
Wheat bran, wheat middlings, cotton seed meal, soybean oil meal, corn gluten feed, corn meal or hominy, cane molasses, ground heavy oats, dried brewers' grains, calcium carbonate, salt.

Granger 20% Dairy Ration
Wheat bran, wheat middlings, cotton seed meal, corn gluten feed, corn meal or hominy feed, soybean oil meal, cane molasses, ground oats, dried brewers' grains, calcium carbonate, salt.

Waldorf 20% Dairy Ration
Wheat bran, corn gluten feed, corn gluten meal, dried brewers' grains, cotton seed meal, cane molasses, ground oats, pulverized wheat screenings, calcium carbonate, salt.

John W. Eshelman & Sons

Eshelman Conestoga 20 Dairy Feed
Cottonseed meal, wheat bran, cane molasses, corn gluten feed, brewers dried grains, corn distillers dried grains, o. p. soybean oil meal, o. p. linseed oil meal, reground grain screenings from wheat, 1% bone meal, 1% calcium carbonate, 1% salt.

Eshelman Pennsy 16 Dairy Feed
Wheat bran, cottonseed meal, cane molasses, corn gluten feed, brewers dried grains, o. p. linseed oil meal, o. p. soybean oil meal, reground grain screenings from wheat, oat mill feed (oat midds, oat hulls, oat shorts), 1% bone meal, 1% calcium carbonate, 1% salt.

Eshelman Pennsy Laying Mash
Corn meal, wheat middlings, meat scrap, wheat bran, ground oats, fine alfalfa meal, o. p. soybean oil meal, cane molasses, fish meal, corn gluten feed, o. p. linseed oil meal, fortified cod liver oil, 1% bone meal, 1% calcium carbonate, 1/80% manganese sulphate, ½% salt.

Eshelman Red Rose All-Mash Starter & Grower
Wheat middlings, corn meal, wheat bran, pulverized oats, o. p. soybean oil meal, oat meal, meat scrap, fish meal, fine alfalfa meal, alfalfa leaf meal, o. p. linseed oil meal, dried buttermilk, dried whey, fortified cod liver oil, 2% calcium carbonate, 1% bone meal, 1/80% manganese sulphate, ½% salt.

Eshelman Red Rose Complete Laying Mash
Corn meal, ground wheat, ground barley, wheat middlings, wheat bran, ground oats, meat scrap, o. p. soybean oil meal, fine alfalfa meal, corn gluten feed, o. p. linseed oil meal, fish meal, dried buttermilk, dried whey, fortified cod liver oil, 1% calcium carbonate, 1.80% manganese sulphate, ½% salt.

Eshelman Red Rose 24 Dairy Feed
Cottonseed meal, wheat bran, corn gluten feed, cane molasses, corn gluten meal, ground oats, brewers dried grains, corn distillers dried grains, corn meal, o. p. linseed oil meal, o. p. soybean oil meal, wheat germ oil, 1% bone meal, 1% calcium carbonate, 1% salt.

Eshelman Red Rose 20 Dairy Feed
Wheat bran, cottonseed meal, ground oats, corn gluten feed, cane molasses, brewers dried grains, corn distillers dried grains, corn meal, o. p. linseed oil meal, o. p soybean oil meal, wheat germ oil, 1% bone meal, 1% calcium carbonate, 1% salt.

Eshelman Red Rose Duck Starter and Grower
Corn meal, meat scrap, wheat middlings, wheat bran, fine alfalfa meal, wheat red dog, o. p. soybean oil meal, fish meal, dried buttermilk, dried whey, 1% calcium carbonate, 1.80% manganese sulphate, ½% salt

Eshelman Red Rose Growing Mash
Wheat middlings, corn meal, wheat bran, meat scrap, pulverized oats, corn gluten feed, oat meal, o. p. soybean oil meal, hominy feed, o. p. linseed oil meal, fish meal, dried buttermilk, dried whey, fine alfalfa meal, fortified cod liver oil, 1% calcium carbonate, 1.80% manganese sulphate, ½% salt.

Eshelman Red Rose Laying Mash
Wheat middlings, corn meal, meat scrap, wheat bran, corn gluten feed, ground oats, o. p. linseed oil meal, fish meal, o. p. soybean oil meal, hominy feed, fine alfalfa meal, dried buttermilk, dried whey, fortified cod liver oil, 1% calcium carbonate, 1.80% manganese sulphate, ½% salt.

Farm Service Co.

C Complete Starter & Broiler Ration
Corn meal, pulverized oats, ground barley, soya bean oil meal, alfalfa meal, wheat bran, wheat midds, dried milk, meat scrap, fish meal, salt, fortified cod liver oil, calcium carbonate.

C Dairy Feed
Corn meal, hominy, cottonseed meal, linseed oil meal, corn gluten feed, wheat bran, wheat midds, ground oats, soya bean oil meal, calcium carbonate, bone meal, salt. (With or without molasses.)

C Growing Mash
Corn meal, mixed feed, ground oats, dried milk, alfalfa meal, meat scraps, calcium carbonate, salt, fortified cod liver oil, fish scraps.

C Laying Mash
Corn meal, mixed feed, corn gluten feed, linseed oil meal, alfalfa meal, ground oats, dried milk, soya bean oil meal, fish meal, calcium carbonate, bone meal, salt, meat scraps.

C S S Mash
Corn meal, wheat bran, wheat midds, ground oats, semi-solid buttermilk, alfalfa meal, soya bean oil meal, corn gluten feed, meat scraps, fish meal, calcium carbonate, salt, fortified cod liver oil.

Diamond A Dairy Feed
Corn meal, hominy, linseed oil meal, corn gluten feed, wheat bran, dried brewers grains, corn gluten meal, cottonseed meal, stock feed, soya bean oil meal, calcium carbonate, salt.

Diamond C Dairy Feed
Wheat bran, wheat midds, corn meal, hominy, cottonseed meal, linseed oil meal, dried brewers grains, beet pulp, corn gluten feed, corn gluten meal, soya bean oil meal, salt, calcium carbonate.

Farm Service All Mash
Corn meal, wheat bran, wheat midds, soya bean oil meal, ground wheat, pulverized oats, oat groats, cod liver meal, fine cracked corn, dehydrated leaf alfalfa, dried whey, dried milk, meat scraps, fish meal, shell meal, salt, fortified cod liver oil.

Farm Service Chick Starter
Wheat bran, flour midds, corn meal, feeding oatmeal dried milk, dried whey, dehydrated alfalfa leaf meal, soya bean oil meal, meat scraps, fish meal, calcium carbonate, salt, fortified cod liver oil, manganese sulphate.

Farm Service 24% Dairy Feed
Corn meal, hominy, ground oats, soya bean flakes, dried brewers grains, wheat bran, corn gluten feed, cottonseed meal, linseed oil meal, ground barley, malt feed, distillers grains, molasses, calcium carbonate, bone meal, salt.

Farm Service 20% Dairy Feed
Corn meal, hominy, soya bean oil meal, dried brewers grains, corn gluten feed, wheat bran, cottonseed meal, linseed oil meal, beet pulp, soya bean flakes, malt feed, oat midds, molasses, calcium carbonate, bone meal, salt, corn distillers grains.

Farm Service 16% Dairy Feed
Corn meal, hominy, soya bean oil meal, dried brewers grains, wheat bran, corn gluten feed, cottonseed meal, linseed oil meal, ground barley, oat midds, malt feed, molasses, calcium carbonate, bone meal, salt.

Farm Service Growing Mash
Corn meal, pulverized oats, ground barley, alfalfa meal, wheat bran, wheat midds, corn gluten feed, linseed oil meal, soya bean oil meal, dried milk, dried whey, meat scraps, fish meal, manganese sulphate, calcium carbonate, salt, fortified cod liver oil.

Farm Service Laying Mash
Corn meal, pulverized oats, alfalfa meal, wheat bran, wheat midds, corn gluten feed, ground barley, soya bean oil meal, dried milk, dried whey, meat scraps, fish meal, calcium carbonate, salt, fortified cod liver oil.

Farm Service Starter and Broiler Ration
Corn meal, wheat bran, wheat midds, ground barley, soya bean oil meal, pulverized oats, dehydrated leaf alfalfa meal, dried milk, dried whey, meat scraps, fish meal, calcium carbonate, salt, fortified cod liver oil, manganese sulphate, corn gluten meal.

Lawrence Cow Ration
Wheat bran, corn meal, hominy, ground oats, pulverized oats, corn gluten feed, cottonseed meal, linseed oil meal, dried brewers grains, soya bean oil meal, molasses, calcium carbonate, salt.

N. E. C. Laying Mash
Corn meal, wheat bran, flour midds, ground oats, meat scraps, dehydrated alfalfa leaf meal, dried skim milk, fish meal, calcium carbonate, salt, fortified cod liver oil.

First National Stores, Inc.

Henfield Egg Mash
Fortified cod liver oil, meat scraps, fish meal, dried skim milk, alfalfa meal, pulverized oats, hominy or corn meal, wheat middlings, wheat bran, wheat flour middlings, corn gluten feed, soya bean oil meal, 1% steamed bone meal, 1% calcium carbonate, ½ of 1% salt.

Flory Milling Co., Inc.

Flory's "All-Mash" Chick Starter
Oatmeal, yellow corn meal, wheat bran, standard wheat middlings, choice fine alfalfa meal, dried tomato pulp, ground barley, dried skim milk, dried whey, Lacto Flavin concentrate, fish meal, meat scrap, liver meal, soybean meal, linseed oil meal, pulverized oats, cod liver oil, essential minerals (calcium carbonate, calcium phosphate, anhydrous manganese sulphate, iodine and salt), wheat germ oil.

Flory's 24% Butterfat Dairy Feed
Corn meal, ground oats, corn gluten feed, corn gluten meal, dried brewers' grains, malt sprouts, corn distillers' grains, cottonseed meal, soybean meal, cane molasses, essential minerals (calcium carbonate, calcium phosphate, calcium sulphate, iron sulphate, sulphur, iodine and salt).

Flory's Complete Starter-Grower-Layer Mash
Alfalfa meal, fish meal, oatmeal, pure corn meal, pulverized oats, dried skim milk, dried whey, Lacto Flavin concentrate, meat scrap, soybean meal, ground wheat, ground barley, wheat bran, standard wheat middlings, tomato pulp, cod liver oil, essential minerals (calcium carbonate, calcium phosphate, anhydrous manganese sulphate, iodine and salt), wheat germ oil.

Flory's 20% Cream-O-Milk Dairy Feed
Corn gluten feed, corn gluten meal, wheat bran (containing screenings not exceeding mill run), dried brewers' grains, corn distillers' grains, malt sprouts, corn meal, soybean meal, o. p. linseed oil meal, ground oats, cottonseed meal, cane molasses, essential minerals (calcium carbonate, calcium phosphate, calcium sulphate, iron sulphate, sulphur, iodine and salt).

Flory's 24% Special Dairy Feed
Cotton seed meal, corn gluten feed, ground white oats, corn gluten meal, wheat bran (containing screenings not exceeding mill run), cocoanut oil meal, corn distillers' grains, dried brewers' grains, malt sprouts, molasses, soybean meal, alfalfa meal, corn meal, standard wheat middlings, essential minerals (calcium carbonate, calcium sulphate, iron sulphate, sulphur, iodine and salt).

Flory's 20% Special Dairy Feed
Cottonseed meal, gluten meal, gluten feed, corn meal, alfalfa meal, ground oats, cocoanut oil meal, soybean meal, corn distillers' grains, dried brewers' grains, malt sprouts, molasses, wheat bran (containing screenings not exceeding mill run), essential minerals (calcium carbonate, calcium phosphate, calcium sulphate, iron sulphate, sulphur, iodine and salt).

Flory's 32% Protein Supplement Mash
Fish meal, soybean oil meal, meat scrap, liver meal, dried skim milk, dried whey, Lacto Flavin concentrate, corn gluten meal, corn gluten feed, standard wheat middlings, wheat bran, alfalfa leaf meal, essential minerals (calcium carbonate, calcium phosphate, anhydrous manganese sulphate, iodine and salt), cod liver oil, wheat germ oil.

Golden Egg Growing Mash
Soybean oil meal, corn meal, ground oats, meat scrap, choice alfalfa meal, ground barley, fish meal, wheat bran, standard wheat middlings, tomato pulp, sugar cane molasses, dried skim milk, dried whey, Lacto Flavin concentrate, essential minerals (calcium carbonate, calcium phosphate, anhydrous manganese sulphate, iodine and salt), cod liver oil, wheat germ oil.

Golden Egg Laying Mash
Dried skim milk, dried whey, Lacto Flavin concentrate, meat scrap, fish meal, dried tomato pulp, soybean meal, yellow corn meal, wheat flour middlings, ground barley, wheat bran, ground white oats, choice alfalfa meal, corn gluten meal, cod liver oil, essential minerals (calcium carbonate, calcium phosphate, anhydrous manganese sulphate, iodine and salt), wheat germ oil.

Record Dairy Feed
O. p. oil meal, cottonseed meal, soybean meal, corn gluten feed, standard wheat middlings, corn meal, wheat bran (containing screenings not exceeding mill run), corn distillers' grains, dried brewers' grains, malt sprouts, ground oats, molasses, alfalfa meal, cocoanut oil meal, essential minerals (calcium carbonate, calcium phosphate, calcium sulphate, iron sulphate, sulphur, iodine and salt).

Fred A. Fountain, Inc.

Fountain's B Starting and Broiler Ration
Yellow corn meal, bran, middlings, alfalfa leaf meal, beef scrap, gluten, second clear flour, fine ground heavy oats, white fish meal, dry buttermilk or dry skim milk, soy bean oil meal, calcium carbonate, table salt, fortified cod liver oil.

Fountain's Breeder Mash
Dry buttermilk or dry skim milk, beef scraps, white fish meal, alfalfa meal, ground oat groats, second clear flour, bran, middlings, yellow corn meal, gluten, calcium carbonate, table salt, fortified cod liver oil.

Fountain's H Laying Mash
Dry skim milk, meat scraps, white fish meal, alfalfa leaf meal, fine ground heavy oats, second clear flour, bran, middlings, yellow corn meal, gluten, calcium carbonate, table salt, fortified cod liver oil, manganese sulphate.

Paul Fuller & Sons

Eggmaker
Dried skim milk, soy bean meal, alfalfa leaf meal, fine ground oats, feeding oat meal, standard wheat bran, fish meal, red dog flour, meat scraps, corn meal, gluten, salt, calcium carbonate.

J. B. Garland & Son, Inc.

Garland Chick Starter
Cod liver oil, corn meal, ground oats, oat meal, dried milk, ground wheat, ground barley, fish meal, meat scraps, wheat bran, wheat middlings, alfalfa leaf meal, calcium carbonate and salt.

Garland Complete Starting & Broiler Mash
Alfalfa leaf meal, fish meal, meat scraps, ground wheat, dried milk, cod liver oil, ground barley, ground oats, corn meal, wheat bran, wheat middlings, calcium carbonate and salt

Garland 24% Dairy Ration
Soybean meal, brewers dried grains, distillers dried grains, cottonseed meal, linseed oil meal, corn gluten feed, wheat bran, middlings, malt sprouts, corn gluten meal, palm kernel meal, corn meal, fish meal, molasses, calcium carbonate and salt.

Garland 20% Dairy Ration
Soybean meal, brewers dried grains, linseed oil meal, cottonseed meal, corn gluten feed, distillers dried grains, malt sprouts, palm kernel meal, wheat bran, middlings, corn meal, fish meal, molasses, calcium carbonate and salt.

Garland Growing Mash
Alfalfa leaf meal, fish meal, meat scraps, linseed oil meal, dried milk, wheat bran, wheat middlings, soybean meal, ground oats, ground wheat, corn meal, calcium carbonate and salt, (with or without cod liver oil).

Garland Laying Mash
Alfalfa leaf meal, soybean meal, fish meal, meat scraps, dried milk, linseed oil meal, wheat bran, wheat middlings, ground oats, ground wheat, corn meal, calcium carbonate and salt, (with or without cod liver oil).

Royal Complete Laying Ration
Corn meal, wheat bran, wheat middlings, ground oats, alfalfa leaf meal, meat scraps, fish meal, soybean meal, dried buttermilk, vitamin tested cod liver oil, calcium carbonate and salt.

Royal 24% Dairy Ration
Soybean meal, ground corn, ground oats, corn gluten feed, wheat and wheat bran processed, distillers dried grains, cottonseed meal, palm kernel meal, molasses, calcium carbonate and salt.

Royal 20% Dairy Ration
Soybean meal, corn gluten feed, distillers dried grains, wheat and wheat bran processed, cottonseed meal, palm kernel meal, ground corn, ground oats, molasses, calcium carbonate and salt.

Royal Laying Mash
Alfalfa meal, corn meal, ground oats, ground wheat, dried milk, wheat bran, wheat middlings, cod liver oil, fish meal, meat scraps, linseed oil meal, soybean meal, calcium carbonate and salt.

Royal Worcester Complete Dairy Ration
Gluten feed, oil meal, ground oats, wheat bran, middlings, corn meal, cottonseed meal, soybean meal, distillers grains, beet pulp, bone meal, calcium carbonate, salt and molasses.

W. K. Gilmore & Sons, Inc.

Conference Mash
Yellow corn meal, standard wheat bran, wheat flour middlings, pure ground oats, meat scraps 50%, pure fish meal 55%, alfalfa leaf meal, milk, calcite flour, cod liver oil, dicalcium phosphate, salt.

Goode Grain Co.

Goode Laying Mash
Yellow corn meal, soy bean meal, wheat bran, wheat middlings, ground oats, meat scraps, fish meal, dried skim or buttermilk, alfalfa meal, calcium carbonate, salt, cod liver oil, Vitadine and manganese sulphate.

Goode Starting & Growing Mash
Yellow corn meal, soy bean meal, wheat middlings, wheat bran, ground oats, meat scraps, fish meal, dried skim or buttermilk, alfalfa meal, calcium carbonate, salt, cod liver oil, Vitadine and manganese sulphate.

Grand Union Co.

Grand Union Laying Mash
Dried buttermilk, meat scraps, gluten feed, ground yellow corn, wheat bran, fine ground oats, wheat middlings, alfalfa meal, fortified cod liver oil, 1% calcium carbonate from limestone, 1% salt.

D. H. Grandin Milling Co.

Grandin's Breeder Mash
Fortified cod liver oil, dried buttermilk, dried whey, meat scraps, fish meal, soybean oil meal, corn gluten meal, dehydrated alfalfa leaf meal, wheat bran, wheat middlings, ground yellow corn, hominy feed, ground wheat, pulverized oats, ground barley, calcium carbonate, salt, potassium iodide, and manganese sulfate.

Grandin's 24 Dairy Feed
Cane molasses, cottonseed meal, soybean oil meal, linseed oil meal, corn gluten meal, corn gluten feed, corn distillers dried grains, wheat bran and wheat middlings (with mill run wheat screenings), yellow corn meal, hominy feed, ground oats, ground barley, steamed bone meal, calcium carbonate, salt and potassium iodide.

Grandin's 20 Dairy Feed
Cane molasses, cottonseed meal, soybean oil meal, linseed oil meal, corn gluten feed, corn distillers dried grains, wheat bran and wheat middlings (with mill run wheat screenings), yellow corn meal, hominy feed, ground oats, ground barley, steamed bone meal, calcium carbonate, salt and potassium iodide.

Grandin's 16 Dairy Feed
Cane molasses, cottonseed meal, soybean oil meal, linseed oil meal, corn gluten feed, corn distillers dried grains, wheat bran and wheat middlings (with mill run wheat screenings), yellow corn meal, hominy feed, ground oats, ground barley, steamed bone meal, calcium carbonate, salt and potassium iodide.

Grandin's Fleshing Pellets
Fortified cod liver oil, dried buttermilk, dried whey, meat scraps, fish meal, soy bean oil meal, wheat red dog, wheat middlings, ground yellow corn, hominy feed, corn germ meal, pulverized oats, ground barley, calcium carbonate, salt, potassium iodide, and manganese sulfate.

Grandin's Growing Mash
Fortified cod liver oil, dried buttermilk, dried whey, meat scraps, fish meal, soybean oil meal, corn gluten feed, dehydrated alfalfa leaf meal, wheat bran, wheat middlings, ground yellow corn, hominy feed, pulverized oats, ground barley, calcium carbonate, salt, potassium iodide, and manganese sulfate.

Grandin's Laying Mash
Fortified cod liver oil, dried buttermilk, dried whey, meat scraps, fish meal, soybean oil meal, corn gluten meal, corn gluten feed, dehydrated alfalfa leaf meal, wheat bran, wheat middlings, ground yellow corn, hominy feed, pulverized oats, ground barley, calcium carbonate, salt, potassium iodide, and manganese sulfate.

Grandin's Milk Maker
Dried beet pulp, cottonseed meal, soybean oil meal, linseed oil meal, corn gluten meal, corn gluten feed, corn distillers dried grains, wheat bran and wheat middlings (with mill run wheat screenings), yellow corn meal, hominy feed, ground oats, ground barley, steamed bone meal, calcium carbonate, salt and potassium iodide.

Grandin's Start-To-Finish Mash
Fortified cod liver oil, dried buttermilk, dried whey, meat scraps, fish meal, soybean oil meal, corn gluten feed, dehydrated alfalfa leaf meal, wheat bran, wheat middlings, ground wheat, ground yellow corn, hominy feed, pulverized oats, ground barley, calcium carbonate, salt, potassium iodide, and manganese sulfate.

Grandin's Twin Six Dairy Feed
Cane molasses, cottonseed meal, soybean oil meal, linseed oil meal, corn gluten meal, corn gluten feed, corn distillers dried grains, alfalfa meal, wheat bran and wheat middlings (with mill run wheat screenings), yellow corn meal, hominy feed, ground oats, ground barley, steamed bone meal, calcium carbonate, salt and potassium iodide.

M-S (Money Saver) 20 Dairy Feed
Cane molasses, cottonseed meal, soybean oil meal, linseed oil meal, corn gluten feed, corn distillers dried grains, brewers dried grains, wheat bran, wheat middlings, ground wheat screenings, corn feed meal, ground oats, ground barley, steamed bone meal, calcium carbonate, salt and potassium iodide.

M-S (Money Saver) Growing Mash
Fortified cod liver oil, dried buttermilk, dried whey, meat scraps, fish meal, soybean oil meal, corn gluten feed, alfalfa leaf meal, wheat bran, wheat middlings, yellow corn meal, corn feed meal, hominy feed, pulverized oats, ground barley, calcium carbonate, salt, potassium iodide, and manganese sulfate.

M-S (Money Saver) Laying Mash
Fortified cod liver oil, dried buttermilk, dried whey, meat scraps, fish meal, soybean oil meal, corn gluten feed, alfalfa leaf meal, wheat bran, wheat middlings, yellow corn meal, corn feed meal, hominy feed, pulverized oats, ground barley, calcium carbonate, salt, potassium iodide, and manganese sulfate.

Great Atlantic & Pacific Tea Co.

Daily Egg Laying Mash Feed
Ground oats, ground barley, soybean oil meal, old process linseed oil meal, corn gluten meal, wheat standard middlings, wheat bran, alfalfa meal, corn feed meal, dried buttermilk, dried skim milk, meat and bone scraps, fish meal, flour middlings, cod liver oil, cod liver meal, calcium carbonate from limestone 2½%, steamed bone meal 1½%, salt ½ of 1%, red iron oxide .02% and potassium iodide .0015%.

Daily Growth Chick Starter
Dried buttermilk, meat and bone scraps, fish meal, wheat flour, wheat standard middlings, ground corn, ground oats, ground oat groats, old process linseed oil meal, alfalfa leaf meal, cod liver oil, calcium carbonate from limestone 1%, salt ½ of 1%, steamed bone meal ½ of 1%.

Daily Growth Growing Mash
Meat and bone scraps, dried buttermilk, dried skimmed milk, wheat bran, alfalfa leaf meal, wheat standard middlings, corn feed meal, ground oats, ground barley, old process linseed oil meal, corn gluten feed, cod liver oil, calcium carbonate from limestone 1%, steamed bone meal ½ of 1%, salt ½ of 1%.

Daily Milk Dairy Feed
Wheat bran, cottonseed meal, wheat standard middlings, molasses, old process linseed oil meal, corn gluten meal, cleaned, ground and bolted screenings from wheat, oats, barley and flax, ground and bolted clipped oat by-product, calcium carbonate from limestone 1%, salt 1%, corn gluten feed, soybean oil meal, malt sprouts.

Milky Way Dairy Feed 24%
Corn feed meal, dried grains from barley, malt and corn, wheat bran, cottonseed meal, wheat standard middlings, ground oats, ground barley, molasses, old process linseed oil meal, corn gluten meal, corn gluten feed, calcium carbonate from limestone 1%, salt 1%, malt sprouts, soybean oil meal.

Milky Way Dairy Feed 20%
Corn feed meal, dried grains from barley, malt and corn, wheat bran, cottonseed meal, wheat standard middlings, ground oats, ground barley, molasses, soybean oil meal, old process linseed oil meal, corn gluten meal, calcium carbonate from limestone 1%, salt 1%, malt sprouts, corn gluten feed.

Hales & Hunter Co.

Red Comb All-Mash
Ground corn, wheat bran, wheat standard middlings, corn gluten feed, meat scraps, alfalfa meal, soy bean oil meal, pulverized oats, fish meal, dried buttermilk, dried whey, calcium carbonate (ground limestone) 1%, salt ½%, granulated charcoal ¼%, manganese sulphate .0125%, cod liver oil, sardine oil.

Red Comb All-Mash Grower
Ground corn, fine ground feeding oat meal, pulverized oats, wheat bran, wheat standard middlings, corn gluten feed, meat scraps, alfalfa meal, soy bean oil meal, fish meal, dried buttermilk, dried whey, calcium carbonate (ground limestone) 1%, salt ½%, granulated charcoal ¼%, manganese sulphate .0125%, sardine oil, cod liver oil.

Red Comb Batry Fed Grower
Ground corn, feeding oat meal, wheat bran, wheat standard middlings, corn gluten feed, meat scraps, alfalfa meal, soy bean oil meal, pulverized oats, fish meal, dried buttermilk, dried whey, calcium carbonate (ground limestone) 1%, salt ½%, granulated charcoal ¼%, manganese sulphate .0125% ,cod liver oil, sardine oil.

Red Comb Batry Fed Layer
Ground corn, feeding oat meal, wheat bran, wheat standard middlings, corn gluten feed, meat scraps, alfalfa meal, soy bean oil meal, pulverized oats, fish meal, dried buttermilk, dried whey, calcium carbonate (ground limestone) 1%, salt ½%, granulated charcoal ¼%, manganese sulphate .0125%, cod liver oil, sardine oil.

Red Comb Broiler Mash
Ground corn, fine ground feeding oat meal, pulverized oats, wheat bran, wheat standard middlings, corn gluten feed, meat scraps, alfalfa meal, soy bean oil meal, fish meal, dried buttermilk, dried whey, calcium carbonate (ground limestone) 1%, salt 1%, granulated charcoal ½%, manganese sulphate .0125%, cod liver oil, sardine oil.

Red Comb Chick Starter
Ground corn, ground oat groats, wheat bran, wheat standard middlings, corn gluten feed, meat scraps, alfalfa meal, soy bean oil meal, pulverized oats, fish meal, dried buttermilk, dried whey, calcium carbonate (ground limestone) 1%, salt ½%, granulated charcoal ½%, manganese sulphate .0125% , sardine oil, cod liver oil.

Red Comb Egg Mash
Ground corn, feeding oat meal, wheat bran, wheat standard middlings, corn gluten feed, meat scraps, alfalfa meal, soy bean oil meal, pulverized oats, fish meal, dried buttermilk, dried whey, calcium carbonate (ground limestone) 1½%, salt 1%, granulated charcoal ½%, manganese sulphate 025%, sardine oil, cod liver oil.

Red Comb Growing Mash
Ground corn, fine ground feeding oat meal, pulverized oats, wheat bran, wheat standard middlings, corn gluten feed, meat scraps, alfalfa meal, soy bean oil meal, fish meal, dried buttermilk, dried whey, calcium carbonate (ground limestone) 1½%, salt 1%, granulated charcoal ½%, manganese sulphate .025%, cod liver oil, sardine oil.

Red Comb Sup-Pel
Concentrated cod liver oil, green dehydrated alfalfa meal, sardine oil, dried buttermilk, dried whey, pulverized barley, wheat germ meal, soy bean oil meal.

Special Red Horn 20% Dairy Feed
Cottonseed meal, linseed oil meal, soybean oil meal, corn distiller's dried grains, wheat bran, corn gluten feed, corn gluten meal, dried brewers grain, malt sprouts, whole ground corn, crimped oats, ground and bolted screenings from wheat, barley, and kafir corn, clipped oat by-product, molasses, salt 1%, calcium carbonate (ground limestone) 2%, corn germ oil meal.

D. Harbeck

Crusader All Purpose Mash
Corn meal, bran, wheat middlings, ground oats, ground barley, ground wheat, meat scraps, fish meal, soya bean meal, gluten meal, alfalfa leaf meal, dried milk or buttermilk, linseed oil meal, charcoal, salt, shell flour, cod liver oil.

Welcome Dairy Feed
Bran, wheat middlings, corn feed meal or hominy, gluten meal, oil meal, cotton seed meal, ground oats, beet pulp, calcium carbonate, bone meal, salt.

Welcome Growing Mash
Corn meal, bran, flour middlings, ground oats, alfalfa leaf meal, meat scraps, fish meal, dried skimmed milk or buttermilk, ground barley, hominy feed, oil meal, ground wheat, bone meal, shell flour, manganese sulphate, salt, cod liver oil.

Welcome Laying Mash
Corn meal, bran, flour middlings, ground oats, meat scraps, fish meal, alfalfa leaf meal, dried skimmed milk or buttermilk, salt, shell flour, cod liver oil.

Welcome Starter & Broiler Ration
Corn meal, bran, flour middlings, ground oat groats or feeding oat meal, dry skimmed milk or buttermilk, alfalfa leaf meal, meat scraps, fish meal, shell flour, manganese sulphate, salt, cod liver oil.

D. B. Hodgkin's Sons

Hodgkins' Dairy Ration
Wheat bran, hominy, ground oats, corn gluten feed, corn meal, cottonseed meal, soy bean meal, linseed meal, beet pulp, brewers grains, molasses, calcium carbonate and salt.

Hodgkins' Growing Mash
Corn meal, wheat bran, wheat middlings, flour middlings, ground oats, alfalfa meal, dried skim milk, soy bean oil meal, meat scraps, fish meal, oyster shell meal, salt and cod liver oil.

Hodgkins' Poultry Mash
Ground corn, oats, middlings and bran (with screenings not to exceed mill run), corn gluten feed, soy bean meal, corn gluten meal, ground meat scraps, calcium carbonate, dried skim milk or dried buttermilk, dairy salt, fish meal, alfalfa leaf meal and cod liver oil.

Horvitz Grain Co.

Mak-M-Lay Laying Mash
Cod liver oil, wheat bran, corn meal, gluten feed, ground oats, ground barley, red dog, wheat middlings, soya bean meal, meat scraps, alfalfa leaf meal, dried skimmilk, calcium carbonate charcoal.

Wantmore Dairy Ration
Hominy feed or corn meal, wheat bran, ground oats, gluten feed, gluten meal, linseed meal, cottonseed meal, wheat middlings, calcium carbonate, salt.

Wantmore Dairy Ration with Beet Pulp
Hominy feed or corn meal, wheat bran, gluten feed, gluten meal, linseed meal, cottonseed meal, wheat middlings, salt, beet pulp, ground oats, calcium carbonate.

Wantmore 24% Sweetened Special Dairy
Soybean oil meal, cottonseed meal, corn gluten feed, corn distillers' dried grains, yellow corn meal or hominy feed, oat mill feed oat hulls, (oat shorts and oat middlings), wheat bran, wheat standard middlings, cane molasses, calcium carbonate, salt.

Wantmore 20% Sweetened Special Dairy
Soybean oil meal, cottonseed meal, corn gluten feed, corn distillers' dried grains, yellow corn meal or hominy feed, oat mill feed (oat hulls, oat shorts and oat middlings), wheat bran, wheat standard middlings, cane molasses, calcium carbonate, salt.

Jaquith & Co.

Dairy Ration
Wheat bran and middlings, cotton seed meal, oil meal, soya bean meal, salt, gluten feed, alfalfa, ground oats and corn, dried grains, minerals, molasses.

Growing Mash
Ground corn, wheat and oats, soy bean meal, meat and bone meal, salt, dried milk, alfalfa, oil, meal and Exadol.

Laying Mash
Ground corn, wheat and oats, gluten feed, oil meal, meat scraps, dried milk, soy bean meal, alfalfa meal, salt and Exadol.

Kasco Mill, Inc.

Apex Complete Grower
Corn meal, pulverized oats, ground barley, wheat bran, wheat middlings, soybean oil meal, linseed oil meal, alfalfa meal, meat scrap, fish meal, bone meal, dried skimmilk, dried whey, Lactoflavin concentrate, ½ of 1% salt, calcite, tested cod liver oil.

Apex Growing Mash
Corn meal, pulverized oats, ground barley, wheat bran, wheat middlings, linseed oil meal, soybean oil meal, alfalfa meal, meat scrap, fish meal, bone meal, dried skimmilk, dried whey, Lactoflavin concentrate, ¾ of 1% salt, calcite, tested cod liver oil.

Apex Laying Mash
Wheat bran, wheat middlings, corn meal, linseed oil meal, soybean oil meal, pulverized oats, ground barley, meat scrap, bone meal, fish meal, dried skimmilk, dried whey, Lactoflavin concentrate, ¾ of 1% salt, calcite, tested cod liver oil, alfalfa meal.

Kasco 20% Milk Maker
Cottonseed meal, linseed oil meal, dried brewers grains, corn distillers grains, corn gluten feed, corn gluten meal, soybean oil meal, corn meal, wheat bran, wheat middlings, ground oats, ground barley, ¾ of 1% salt, 1% calcite, molasses, malt sprouts.

Kasco Sweet 16% Dairy Feed
Wheat bran, corn gluten feed, corn gluten meal, cottonseed meal, soybean oil meal, ground oats, ground barley, ground wheat screenings, corn meal, oat mill feed (oat midds, oat hulls, oat shorts), malt sprouts, dried brewers grains, corn distillers grains, molasses, 1% salt, 1% calcite.

Larrowe Milling Co.

Larro the Ready Ration for Dairy Cows
Cottonseed meal, yellow corn meal, wheat standard middlings, soybean oil meal, o. p. linseed oil meal, corn gluten feed, corn distillers' dried grains, dried beet pulp, wheat bran, ½% limestone, 1% salt.

Larro Broiler Feed
Yellow corn meal, wheat standard middlings, corn gluten meal, alfalfa meal, wheat bran, meat and bone scraps, soybean oil meal, fish meal, ground oats, dried buttermilk, dried skimmed milk, dried whey, fortified cod liver oil, 2% limestone, ½% salt, .01% manganese dioxide

Larro Chick Builder
Wheat bran, yellow corn meal, wheat standard middlings, ground barley, meat and bone scraps soybean oil meal, fish meal, alfalfa meal, dried buttermilk, dried skimmed milk, dried whey, ground oats, fortified cod liver oil, 2½% limestone, ½% salt, .01% manganese dioxide.

Larro Egg Mash
Wheat bran, yellow corn meal, wheat standard middlings, ground barley, meat and bone scraps, soybean oil meal, fish meal, alfalfa meal, dried buttermilk, dried skimmed milk, dried whey, ground oats, fortified cod liver oil, 2½% limestone, ½% salt, .01% manganese dioxide.

Mansfield Coal & Grain Co.

Manco 20% Dairy Feed
Dried brewers grains, ground oats, wheat bran, yellow corn meal, 41% cottonseed meal, molasses, 41% soybean meal, corn gluten feed, 32% linseed meal, ground barley, bone meal, and salt.

Manco Laying Mash
Wheat standard middlings, yellow corn meal, wheat bran, ground barley, 58% protein fish meal, dried skim milk, 50% protein meat scraps, 41% soybean meal, ground oats, alfalfa meal, corn gluten meal, oyster shell meal or calcium carbonate, cod liver oil or concentrated oil, and salt.

Mansfield Milling Co.

Mansfield Chick-Growing Mash
Vitamelk base, ground yellow corn, wheat middlings, charcoal, wheat bran, meat scraps, alfalfa leaf meal, red dog flour, fish meal, feeding oat meal, soy bean oil meal, 1% salt, 2% calcium carbonate.

Mansfield Chick-Starter
Vitamelk base, yellow corn meal, wheat middlings, wheat bran, alfalfa leaf meal, meat scraps, salt ½%, pulverized oats, bone meal, soy bean oil meal, calcium carbonate 1½%.

Mansfield Dry Poultry Mash
Vitamelk base, ground yellow corn, wheat middlings, wheat bran, meat scraps, alfalfa meal, pulverized oats, soy bean oil meal, bone meal, corn gluten feed, wheat red dog flour, 2% calcium carbonate, 1% salt.

Mansfield Sweetened "20"
Wheat bran, wheat middlings, dried brewers grains, cotton seed meal, corn gluten feed, corn meal, hominy, linseed oil meal, ground oats, cane molasses, edible bone meal, calcium carbonate, salt.

Marilime Milling Co., Inc.

B B Broiler Ration
Fortified cod liver oil, kelp meal, dried cheese whey, dried buttermilk, dehydrated alfalfa leaf meal, wheat bran, flour middlings, ground wheat, corn meal, pulverized heavy oats, pulverized barley, ground oat meal, soya bean oil meal, corn gluten meal, meat and bone meal, fish meal, calcium carbonate, salt, potassium iodide and manganese sulphate.

B B Complete Chick Starter Ration
Fortified cod liver oil, kelp meal, dried cheese whey, dried buttermilk, dehydrated alfalfa leaf meal, wheat standard middlings, wheat bran, ground wheat, corn gluten meal, corn meal, pulverized heavy oats, pulverized barley, soya bean oil meal, ground oat meal, meat and bone meal, fish meal, calcium carbonate, salt, potassium iodide and manganese sulphate.

B B Bull Brand Dry and Fresh Cow Fitling Ration
Dried beet pulp, hominy feed, corn meal, alfalfa meal, soya bean oil meal, crushed oats, wheat bran, o. p. linseed oil meal, corn gluten feed, molasses, steamed bone meal, calcium carbonate, salt and potassium iodide.

B B Fattening Mash
Dried cheese whey, dried buttermilk, wheat flour middlings, wheat standard middlings, corn meal, corn germ meal, dehydrated alfalfa meal, pulverized barley, pulverized heavy oats, o. p. linseed oil meal, feeding rolled oats, meat and bone meal, calcium carbonate and salt.

B B Flushing and Conditioning Mash
Fortified cod liver oil, shark liver oil, dried cheese whey, dried buttermilk, dehydrated alfalfa leaf meal, wheat standard middlings, corn meal, ground oat meal, soya bean oil meal, meat and bone meal, fish meal, calcium carbonate, salt and potassium iodide.

B B Layer & Breeder Mash
Fortified cod liver oil, liver meal, kelp meal, dried cheese whey, dried buttermilk, dehydrated alfalfa leaf meal, wheat bran, wheat standard middlings, soya bean oil meal, corn gluten meal, corn meal, pulverized heavy oats, pulverized barley, ground oat meal, meat and bone meal, fish meal, calcium carbonate, salt, potassium iodide and manganese sulphate.

Sweelened B B Bull Brand "24" Dairy Ration
Dried brewers grains, corn distillers grains, cotton seed meal, corn gluten feed, soya bean oil meal, o. p. linseed oil meal, hominy feed, corn meal, wheat bran and wheat standard middlings, molasses, steamed bone meal, calcium carbonate, salt and potassium iodide.

Sweelened B B Bull Brand "20" Dairy Ration
Dried brewers grains, corn distillers grains, cotton seed meal, corn gluten feed, soya bean oil meal, o. p. linseed oil meal, hominy feed, corn meal, wheat bran and wheat standard middlings, molasses, steamed bone meal, calcium carbonate, salt and potassium iodide.

B B Daisy Egg Mash
Dried buttermilk, alfalfa meal, wheat bran, wheat standard middlings, soya bean oil meal, corn gluten meal, corn meal, pulverized barley, pulverized oats, meat and bone meal, fish meal, calcium carbonate, salt and manganese sulphate. (With or without fortified cod liver oil.)

Hi-Test Dairy Feed 24% Pro. Sweetened
Dried brewers grains, cotton seed meal, corn gluten feed, soya bean oil meal, hominy feed, corn meal, ground oats, cleaned, pulverized and bolted screenings from wheat, oats, and barley, wheat bran, molasses, steamed bone meal, calcium carbonate and salt.

Hi-Test Dairy Feed 20% Pro. Sweelened
Dried brewers grains, cotton seed meal, corn gluten feed, soya bean oil meal, hominy feed, ground oats, corn meal, cleaned, pulverized and bolted screenings from wheat, oats and barley, wheat bran, molasses, steamed bone meal, calcium carbonate and salt.

Marmico 16% Protein Dairy Feed
Dried brewers grains, soya bean oil meal, cotton seed meal, corn gluten feed, corn meal, cleaned, pulverized and bolted screenings from wheat, oats, and barley, wheat bran, molasses, steamed bone meal, calcium carbonate and salt.

Merrimack Farmers' Exchange, Inc.

Merrimack Milk Ration Sweetened
Wheat bran, wheat standard middlings, corn gluten feed, corn gluten meal, linseed oil meal, soybean oil meal, cottonseed meal, ground oats, corn meal, brewers dried grains, cane molasses, steamed bone meal, calcium carbonate, salt, distillers grain.

Middlesex County Farm Bureau Association

Farm Bureau Brand All Mash Developer
Corn meal, wheat bran, flour middlings, ground oats, ground barley, alfalfa leaf meal, soybean oil meal 41%, dried skim milk, meat scraps 50%, fish meal 58%, oyster shell meal, cod liver oil, salt.

Farm Bureau Brand All Mash Laying
Yellow corn meal, wheat bran, standard middlings, ground oats, dried skim milk, alfalfa leaf meal, meat scraps 50%, fish meal 58%, oyster shell meal, cod liver oil, salt.

Farm Bureau Brand Battery Mash
Corn meal, wheat bran, standard middlings, ground oats, pulverized oats, alfalfa leaf meal, fish meal 58%, dried skim milk, meat scraps 50%, oyster shell flour, salt, cod liver oil, dicalcium phosphate.

Farm Bureau Brand Breeder & Laying Mash 20%
Corn meal, ground oats, standard wheat bran, alfalfa leaf meal, flour middlings, meat scraps 50%, fish meal, soybean meal, powdered skim milk, whey (powdered), oyster shell meal, salt, cod liver oil.

Farm Bureau Brand Dairy Ration 24%
Corn meal, ground oats, wheat bran, corn distiller's grain, cottonseed meal 41%, corn gluten feed, linseed oil meal, cane molasses, calcium carbonate, salt, soybean meal.

Farm Bureau Brand Dairy Ration 20%
Corn meal, ground oats, standard wheat bran, corn distiller's grain, cottonseed meal 41%, soybean meal 41%, corn gluten feed, linseed oil meal, cane molasses, ground barley, calcium carbonate, salt.

Farm Bureau Brand Dairy Ration 16%
Corn meal, ground oats, standard wheat bran, corn distiller's grain, corn gluten feed, ground barley, cane molasses, cottonseed meal, soybean meal, linseed oil meal, calcium carbonate, salt.

Farm Bureau Brand Dairy Ration 12%
Corn meal, crimped oats, standard wheat bran, ground barley, cane molasses, alfalfa leaf meal, soybean meal 41%, linseed oil meal, cod liver oil, calcium carbonate, salt.

Farm Bureau Brand Developer
Corn meal, ground oats, pulverized oats, wheat bran, alfalfa leaf meal, standard middlings, flour middlings, meat scraps 50%, soybean meal 41%, corn gluten meal, fish meal 58%, dried skim milk, oyster shell meal (manganese), salt, cod liver oil.

Farm Bureau Brand Flushing Mash
Corn meal, wheat bran, linseed oil meal, dried skim milk, meat scraps, cod liver oil, salt.

Farm Bureau Brand Laying Mash 17%
Corn meal, ground oats, wheat bran, alfalfa leaf meal, flour middlings, meat scraps 50%, fish meal 58%, dried skim milk, oyster shell meal, cod liver oil, salt.

Farm Bureau Brand Starter & Broiler
Corn meal, pulverized oats, standard wheat bran, alfalfa leaf meal, standard middlings, meat scraps 50%, flour middlings, dried skim milk, corn gluten meal, fish meal 58%, ground oat groats, oyster shell meal (manganese), soybean meal, cod liver oil, salt.

Geo. Q. Moon & Co., Inc.

Complete Starter & Broiler Mash
Yellow corn meal, white middlings, bran, pulverized oats, meat scrap, fish meal, dried skimmed milk, alfalfa meal, ground limestone, salt, cod liver oil, Vitadine, manganese sulphate, wheat germ oil. (Wheat bran and wheat middlings not to exceed mill run screenings.)

Crescent Growing Mash
Corn meal, wheat bran (with ground screenings not to exceed mill run), soybean oil meal, pulverized oats, ground oats, corn gluten feed, alfalfa meal, meat scraps, fish meal, dried skimmed milk, cod liver oil, salt, calcium carbonate, manganese sulphate, molasses.

Crescent Laying Mash
Corn meal, wheat bran (with ground screenings not to exceed mill run), soybean oil meal, pulverized oats, ground oats, corn gluten feed, alfalfa meal, meat scraps, fish meal, cod liver oil, dried skimmed milk, salt, calcium carbonate, manganese sulphate, molasses.

Crescent Starter Mash
Roller corn meal, wheat bran (with ground screenings not to exceed mill run), soybean oil meal, pulverized oats, alfalfa meal, meat scraps, fish meal, calcium carbonate, cod liver oil, dried skim milk, manganese sulphate, molasses, salt, corn gluten feed.

Moon's Complete Growing Mash
Yellow corn meal, standard middlings, bran (with ground screenings not to exceed mill run), pulverized oats, meat scraps, dried skim milk, alfalfa meal, ground limestone, salt, cod liver oil, Vitadine, soybean oil meal, bone meal, manganese sulphate, wheat germ oil.

Moon's Complete Laying Mash
Corn meal, standard middlings, wheat bran (with ground screenings not to exceed mill run), white wheat middlings, meat scrap, dried skim milk, bone meal, salt, calcium carbonate, alfalfa meal, cod liver oil, soybean oil meal, pulverized oats, manganese sulphate, corn gluten feed.

Moon's Growing Mash
Standard middlings, wheat bran (with ground screenings not to exceed mill run), white wheat middlings, pulverized oats, corn meal, hominy feed, meat scrap, fish meal, steamed bone meal, soybean oil meal, alfalfa meal, calcium carbonate, salt, cod liver oil, dried buttermilk, dried skim milk, manganese sulphate, Vitadine, wheat germ oil.

Moon's Laying Mash
Standard middlings, wheat bran (with ground screenings not to exceed mill run), ground barley, meat scrap, fish meal, soybean oil meal, pulverized oats, corn gluten feed, corn meal, wheat flour middlings, hominy feed, alfalfa meal, dried skim milk, dried buttermilk, calcium carbonate, salt, cod liver oil, manganese sulphate, Vitadine, wheat germ oil

Open Formula Dairy Ration
Wheat bran, yellow hominy feed, ground oats, corn gluten feed, cottonseed meal, soybean oil meal, o. p. linseed oil meal, corn distillers dried grains, molasses, dicalcium phosphate, salt.

Special A Dairy 20% Ration
Corn gluten feed, corn distillers grains, rye distillers grains, cotton seed meal, o. p. linseed oil meal, wheat bran (with ground screenings not to exceed mill run), soybean oil meal, peanut oil meal, hominy feed, calcium carbonate, salt, molasses, babassu meal, palm kernel meal.

U. S. 24% Dairy Ration
Corn gluten feed, rye distillers grains, corn distillers grains, hominy feed, corn meal, soybean oil meal, peanut oil meal, o. p. linseed oil meal, cottonseed meal, alfalfa meal, wheat bran (with ground screenings not to exceed mill run), ground grain screenings, ground and bolted clipped oat by-product, cocoa bean residue meal, calcium carbonate, salt, molasses, ground barley, babassu meal, palm kernel meal

U. S. 20% Dairy Ration
Tucum meal, cocoa bean residue meal, corn gluten feed, soybean oil meal, peanut oil meal, wheat bran (with ground screenings not to exceed mill run), ground and bolted clipped oat by-product, alfalfa meal, cottonseed meal, rye distillers grains, corn distillers grains, calcium carbonate, ground screenings from wheat, salt, molasses, ground barley, murumuru meal, babassu meal, palm kernel meal.

New England Retail Grain Dealers Cooperative Association, Inc.

New England Quality Chick Starter
Meat meal, fish meal, blood flour meal, oatmeal, pulverized oats, yellow corn meal, corn hominy, wheat bran, flour middlings, soybean meal, alfalfa meal, skim or buttermilk, dried whey, fortified cod liver oil, bone charcoal, iron sulphate, manganese sulphate, calcium carbonate, iodine salt.

New England Quality Complete Laying Mash
Corn meal, soybean meal, gluten meal, meat meal, choice alfalfa, wheat bran, wheat middlings, skim milk, pulverized heavy oats, fortified cod liver oil, minerals: manganese sulphate, iron sulphate, calcium carbonate, bone charcoal, iodine salt.

New England Quality 20% Dairy Feed
Choice cottonseed meal, o. p. linseed oil meal, gluten feed, 28% corn distillers, soybean meal, ground wheat, wheat bran (may contain screenings), standard middlings, heavy ground oats, corn meal or corn hominy feed, choice malt sprouts, 24% brewers grains, cane molasses, bone charcoal, iron sulphate, iodine salt.

New England Quality 16% Dairy Feed
Corn distillers grains, soybean oil meal, o. p. linseed oil meal, corn gluten feed, choice cottonseed meal, ground barley, wheat bran (may contain screenings), ground oats, malt sprouts, corn meal or hominy feed, cane molasses, bone charcoal, iron sulphate, calcium carbonate, iodine salt.

New England Quality Growing Mash
Meat meal, fish meal, skim or buttermilk, dried whey, fortified cod liver oil, yellow corn meal, heavy ground oats, ground barley, wheat bran, soybean, alfalfa meal, flour middlings, oatmeal, bone charcoal, iron sulphate, manganese sulphate, calcium carbonate, iodine salt.

New England Quality Laying Mash
Meat meal, fish meal, skim or buttermilk, cod liver oil, yellow corn meal, heavy ground oats, whole ground wheat, ground barley, red dog flour, wheat bran, gluten meal, soybean, alfalfa meal, bone charcoal, iron sulphate, calcium carbonate, iodine salt.

New England Yankee 20% Dairy Ration
Corn distillers grains, choice malt sprouts, corn gluten feed, o. p. linseed oil meal, corn feed meal or hominy, wheat bran (may contain screenings), dried brewers grains, choice cottonseed meal, soybean oil meal, cane molasses, salt iodine, calcium carbonate.

New England Yankee Egg Mash
Meat meal, fish meal, soybean oil meal, corn gluten meal, skim or buttermilk, dried whey, o. p. linseed oil meal, yellow corn meal, wheat bran (may contain screenings), pulverized oats, wheat flour middlings, wheat standard middlings, choice alfalfa, ground barley, salt iodine, calcium carbonate, manganese sulphate, USP cod liver oil, steamed bone meal.

New England Yankee Growing Mash
Meat meal, fish meal, corn gluten meal, soybean oil meal, o. p. linseed oil meal, skim or buttermilk, yellow corn meal, pulverized oats, standard bran (may contain screenings), standard middlings, flour middlings, choice alfalfa, steamed bone meal, salt iodine, calcium carbonate.

Ogden Grain Co.

Biddy Laying Mash
Alfalfa meal, pulverized oats, meat scraps, fish meal, dried skim milk, soya bean oil meal, corn meal, ground wheat, wheat bran, wheat middlings (may contain mill run screenings), salt, oyster shell meal, cod liver oil, potassium iodide.

Cloverbloom 20% Dairy Feed
Corn gluten feed, cotton seed meal, old process linseed meal, soya bean oil meal, dried brewers' grains, wheat bran, ground wheat screenings, oat feed (oat hulls, oat shorts, oat middlings), corn meal or hominy, cane molasses, salt, calcium carbonate.

Pilgrim Cackle 20% Layer-Breeder
Dried skim milk, alfalfa meal, pulverized oats, meat scraps, fish meal, gluten meal, corn meal, soya bean oil meal, wheat bran, wheat middlings, oyster shell meal, cod liver oil, salt, potassium iodide and "Vitadine".

Pilgrim 16% Dairy Feed
Corn meal, ground oats, wheat bran, corn distillers' dried grains, corn gluten feed, ground barley, cotton seed meal, linseed oil meal, soya bean oil meal, steamed bone meal, calcium carbonate, salt, molasses, potassium iodide.

Pilgrim Growing Mash
Alfalfa meal, dried skim milk, meat scraps, fish meal, wheat middlings, wheat bran, pulverized oats, corn meal, oyster shell meal, salt, cod liver oil, potassium iodide.

Pilgrim Special Laying Mash
Alfalfa meal, pulverized oats, meat scraps, fish meal, dried skim milk, soya bean oil meal, corn meal, ground wheat, wheat bran, wheat middlings (may contain mill run screenings), salt, oyster shell meal, cod liver oil, molasses, potassium iodide.

Pilgrim Starter & Broiler Ration
Corn meal, gluten meal, soya bean oil meal, alfalfa leaf meal, fine ground oats, meat scraps, fish meal, wheat bran, standard middlings, red dog middlings, dried skim milk, cod liver oil, oyster shell meal, salt, potassium iodide.

Thrift 20% Dairy Feed
Soya bean oil meal, old process linseed oil meal, corn gluten feed, gluten meal, ground corn, ground oats, ground wheat, cotton seed meal, wheat bran, wheat middlings (may contain mill run screenings), dried brewers grains, molasses, calcium carbonate, salt, potassium iodide.

Park & Pollard Co.

Bidwell Growing Feed
Dried buttermilk, corn meal, alfalfa meal, ground oats, ground wheat, meat, bone, corn gluten meal, ground buckwheat, wheat bran (may contain mill run wheat screenings), wheat middlings, soybean oil meal, ground barley, fish meal, calcium carbonate, salt, manganese sulphate and vitamin tested cod liver oil.

Bidwell Laying Mash
Dried buttermilk, alfalfa meal, corn meal, ground oats, ground barley, wheat bran (may contain mill run wheat screenings), wheat middlings, fish meal, meat and bone meal, linseed oil meal, corn gluten meal, soybean oil meal, calcium carbonate, manganese sulphate, vitamin tested cod liver oil.

Doublex 24% Dairy Ration
Wheat bran, linseed oil meal, brewers dried grains, soybean oil meal, ground oats, malt sprouts, corn gluten meal, cottonseed meal, corn gluten feed, ground grain screenings from wheat, oats barley, buckwheat and milo, molasses, calcium carbonate and salt.

Doublex 20% Dairy Ration
Linseed oil meal, corn gluten feed, brewers dried grains, ground oats, corn gluten meal, soybean oil meal, corn distillers grains, ground barley, wheat bran malt sprouts, cottonseed meal, ground grain screenings from wheat, oats, barley, buckwheat and milo, molasses, calcium carbonate and salt.

Doublex 16% Dairy Ration
Corn distillers grains, ground oats, ground barley, brewers dried grains, malt sprouts, linseed oil meal, cottonseed meal, ground grain screenings from wheat, oats, barley, buckwheat and milo, soybean oil meal, corn gluten feed, molasses, calcium carbonate and salt.

Manamar Doublex 20% Dairy Ration
Kelp Pacific Coast fish meal, marine sea shells, linseed oil meal, corn gluten feed, brewers dried grains, ground oats, corn gluten meal, soybean oil meal, ground barley, corn distillers grains, wheat bran, malt sprouts, cottonseed meal, ground grain screenings from wheat, oats, barley, buckwheat and milo, molasses, calcium carbonate and salt.

Milkmaid 24% Sweetened Dairy Ration
Corn gluten feed, linseed oil meal, cottonseed meal, ground barley, corn distillers dried grains, soybean oil meal, wheat bran, brewers dried grains, malt sprouts, corn gluten meal, corn meal, molasses, calcium carbonate and salt.

Milkmaid 20% Dairy Ration
Corn gluten feed, linseed oil meal, cottonseed meal, ground barley corn distillers dried grains, soybean oil meal ground oats, wheat bran, brewers dried grains, malt sprouts, corn gluten meal, corn meal, cane molasses, calcium carbonate and salt.

Milkmaid 16% Dairy Ration
Corn gluten feed, linseed oil meal, ground barley, cottonseed meal, corn distillers dried grains, soybean oil meal, ground oats, wheat bran, wheat middlings, brewers dried grains, malt sprouts, corn gluten meal, corn meal, cane molasses, calcium carbonate and salt.

Park & Pollard Breeder Mash
Yellow corn meal, pulverized oats, alfalfa leaf meal, wheat bran, wheat middlings, meat scrap, fish meal, old process linseed oil meal, corn gluten meal, soybean oil meal, dried buttermilk, dried whey, manganese sulphate, salt, calcium carbonate, vitamin tested cod liver oil.

Park & Pollard Chick Starter
Dried buttermilk, ground yellow corn, ground oats, ground barley, oat meal, fish meal, meat scrap, wheat bran, wheat middlings, corn gluten meal, soybean oil meal, alfalfa leaf meal, calcium carbonate, manganese sulphate, salt, vitamin tested cod liver oil.

Park & Pollard Fleshing Pellets
Yellow corn meal, ground barley, ground oats, soybean oil meal, dehydrated alfalfa leaf meal, meat scrap, wheat bran (may contain mill run wheat screenings), wheat middlings, linseed oil meal, gluten feed, molasses, dried buttermilk, calcium carbonate, salt and cod liver oil.

Park & Pollard Starter & Broiler Mash
Ground yellow corn, wheat bran, wheat flour middlings, pulverized oats, fish meal, meat scrap, corn gluten meal, soybean oil meal, alfalfa leaf meal, calcium carbonate, manganese sulphate, salt, dried skim milk, vitamin tested cod liver oil.

Park & Pollard Turkey Grower
Yellow corn meal, ground barley, dehydrated alfalfa leaf meal, ground oats, meat scrap, wheat bran, wheat middlings, corn gluten meal, soybean oil meal, dried buttermilk, dried skim milk, calcium carbonate, salt, manganese sulphate, vitamin tested cod liver oil.

George H. Parker Grain Co.

Parker's Egg Mash
Yellow corn meal, wheat bran, wheat middlings, ground oats, dried skim milk, meat scraps, fish meal, alfalfa leaf meal, soy bean meal, edible bone meal, calcium carbonate, charcoal, vitamin tested cod liver oil and salt.

Parker's Special Dairy Ration
Wheat bran, yellow corn meal, hominy, old process linseed meal, soy bean meal, oat feed, corn gluten feed, cottonseed meal, molasses, calcium carbonate, edible bone meal and salt

Phaneuf & Son

O-Boy Egg Mash
Ground yellow meal and ground oats, fish meal, soybean oil meal, meat scraps, milk sugar feed, or dried whey (feeding), corn gluten meal, standard wheat middlings, wheat bran, cocoanut oil meal, liver meal, alfalfa leaf meal, essential minerals (calcium carbonate, calcium phosphate, calcium sulphate, iron sulphate, sulphur, iodine, and salt), cod liver oil.

W. N. Potter Grain Stores, Inc.

A. D. P. 24% Dairy Ration
Ground corn, hominy, cotton seed meal, corn gluten meal, wheat bran, ground oats, oilmeal, calcium carbonate, bone meal and salt.

H. C. Puffer Co.

Egg-Em-On Laying Mash
Dried milk, dried fish, meat scraps, wheat bran and wheat middlings (not exceeding mill run screenings), corn feed meal, corn gluten feed, ground oats, soy bean meal, linseed meal, alfalfa meal, cod liver oil, small percentages salt, calcium carbonate, and manganese sulphate.

Egg-Em-On Starting Mash
Corn meal, wheat bran, wheat middlings, red dog middlings, ground oat groats, soy bean meal, ground barley, dried milk (skim or buttermilk), alfalfa meal, fish meal, meat scraps, dicalcium phosphate, cod liver oil, calcium carbonate, salt, and manganese sulphate.

Producer Dairy Feed
Linseed oil meal, cottonseed meal, corn gluten feed, soy bean meal, ground oats, corn feed meal or hominy meal, wheat bran (not exceeding mill run screenings), small percentage salt, calcium carbonate, edible bone meal, and wheat middlings

Sweetened Producer Dairy Feed
Linseed oil meal, cottonseed meal, corn gluten feed, corn feed meal or hominy, wheat bran (not exceeding mill run screenings), oat feed, molasses, small percentage salt, calcium carbonate, edible bone meal, and soy bean meal.

Quaker Oats Co.

Big Egg Laying Mash or (Pellets)
Hominy feed, yellow hominy feed, wheat bran, wheat standard middlings, corn gluten meal, ground oats, fish meal, cod liver meal, soybean oil meal, meat scraps, fortified sardine oil, dried buttermilk, cane molasses, alfalfa meal, ¾ of 1% salt.

Ful-O-Pep Chick Starter
Oatmeal, yellow hominy feed, wheat bran, wheat standard middlings, fish meal, cod liver meal, meat scraps, fortified sardine oil, dried whey, dried buttermilk, cane molasses, alfalfa meal, dehydrated cereal grass, ¾ of 1% salt.

Ful-O-Pep Crate Fattener
Rolled oats, ground corn, hominy feed, yellow hominy feed, wheat standard middlings, pulverized oats, barley feed, linseed meal, corn oil meal, ground puffed rice, cane molasses, ¾ of 1% salt.

Ful-O-Pep Egg-Breeder Mash
Oatmeal, hominy feed, yellow hominy feed, wheat bran, wheat standard middlings, barley feed, fish meal, cod liver meal, meat scraps, fortified sardine oil, dried whey, dried buttermilk, cane molasses, alfalfa meal, dehydrated cereal grass, ¾ of 1% salt.

Ful-O-Pep Growing Mash
Oatmeal, yellow hominy feed, wheat bran, wheat standard middlings, barley feed, fish meal, cod liver meal, meat scraps, fortified sardine oil, dried whey, dried buttermilk, cane molasses, alfalfa meal, dehydrated cereal grass, ¾ of 1% salt.

Ful-O-Pep Growing Mash
Oatmeal, yellow hominy feed, wheat bran, wheat standard middlings, barley feed, fish meal, cod liver meal, meat scraps, fortified sardine oil, dried whey, dried buttermilk, cane molasses, alfalfa meal, dehydrated cereal grass, ¾ of 1% salt.

Ful-O-Pep Turkey Grower
Oatmeal, hominy feed, yellow hominy feed, wheat bran, wheat standard middlings, barley feed, fish meal, cod liver meal, meat scraps, fortified sardine oil, dried whey, dried buttermilk, cane molasses, alfalfa meal, dehydrated cereal grass, ¾ of 1% salt.

Quaker 20% Protein Dairy Ration
Hominy feed, yellow hominy feed, barley feed, cottonseed meal, corn distillers' grains, corn gluten feed, soybean oil meal, wheat bran, wheat standard middlings, oat mill feed (oat hulls, oat shorts oat middlings), 1% salt, 1% iodized ground limestone, 1% bone meal, cane molasses.

Ralston Purina Co.

Protena 20% Dairy Feed
Soy bean oil meal, cottonseed meal, corn gluten feed, wheat middlings (standard), alfalfa meal, wheat bran, ground grain screenings (from wheat, corn, oats, barley, kafir), molasses, 2% calcium carbonate (limestone), 1% iodized salt.

Protena 16% Dairy Feed
Soy bean oil meal, gluten feed, alfalfa meal, wheat middlings (standard), cottonseed meal, molasses, ground grain screenings (from wheat, corn, oats, barley, kafir), wheat bran, 2% calcium carbonate (limestone), 1% iodized salt.

Purina Bulky Las Chow
Dried beet pulp, wheat bran, molasses, wheat middlings (standard), alfalfa meal, 2% calcium carbonate (limestone), 2% iodized salt.

Purina Chick Growena
Flavin concentrate, carotene, cod liver oil, sardine oil, meat scrap, fish meal, soy bean oil meal, wheat germ, dried buttermilk, dried whey, alfalfa meal, corn meal, beet pulp, wheat middlings (grey), wheat bran, 1½% calcium carbonate (limestone), ½% iodized salt.

Purina Chick Startena
Flavin concentrate, carotene, cod liver oil, sardine oil, meat scrap, fish meal, soy bean oil meal, alfalfa leaf meal, wheat germ, dried buttermilk, dried whey, linseed meal, corn germ meal, oat middlings, corn meal, wheat bran, wheat middlings (grey), 1½% calcium carbonate (limestone), ½% iodized salt.

Purina Cow Chow 24%
Soy bean oil meal, corn gluten feed, linseed meal, cottonseed meal, distillers' corn dried grains, wheat middlings (standard), wheat bran, corn meal, alfalfa meal, molasses, minerals: 1% steamed bone meal (tri-calcium phosphate), 1% salt (sodium chloride), 1% limestone (calcium carbonate), potassium iodide—0.17 grams per 100 pounds of feed.

Purina Cow Chow 20%
Soy bean oil meal, corn gluten feed, linseed meal, crushed oats, cottonseed meal, distillers' corn dried grains, wheat middlings (standard), wheat bran, corn meal, alfalfa meal, molasses, minerals: 1% steamed bone meal (tri-calcium phosphate), 1% salt (sodium chloride), 1% limestone (calcium carbonate), potassium iodide—0.17 grams per 100 pounds of feed.

Purina Cow Chow 18%
Soy bean oil meal, cottonseed meal, distillers' corn dried grains, corn gluten feed, crushed oats, corn meal, wheat middlings (standard), alfalfa meal, wheat bran, molasses, minerals: 1% steamed bone meal (tri-calcium phosphate), 1% salt (sodium chloride), 1% limestone (calcium carbonate), potassium iodide—0.17 grams per 100 pounds of feed.

Purina Cow Chow 16%
Soy bean oil meal, corn gluten feed, linseed meal, crushed oats, ground barley, cottonseed meal, distillers' corn dried grains, wheat middlings (standard), wheat bran, corn meal, molasses, minerals: 1% steamed bone meal (tri calcium phosphate), 1% salt (sodium chloride), 1% limestone (calcium carbonate), potassium iodide—0.17 grams per 100 pounds of feed.

Purina Dry and Freshening Chow
Flavin concentrate, carotene, soy bean oil meal, corn gluten meal, crushed oats, dried beet pulp, corn meal, alfalfa meal, wheat bran, molasses, 2% calcium carbonate (limestone), 2% iodized salt.

Purina Duck Breeder Chow
Flavin concentrate, corn meal, ground oats, alfalfa leaf meal, wheat bran, dried buttermilk, dried whey, wheat flour (second clear), meat scrap, fish meal, wheat germ, cod liver oil, sardine oil, ½% iodized salt, 1.5% calcium carbonate (limestone).

Purina Family Flock Chow
Carotene, meat scrap, soy bean oil meal, alfalfa meal, dried buttermilk, wheat middlings (standard), wheat bran, corn meal, ground barley, corn gluten feed, cod liver oil, sardine oil, 4% calcium carbonate (limestone), ½% iodized salt.

Purina Lay Chow
Flavin concentrate, carotene, cod liver oil, sardine oil, meat scrap, soy bean oil meal, fish meal, alfalfa meal, dried buttermilk, dried whey, corn germ meal, wheat middlings (standard), wheat bran, corn meal, ground oats, 1% iodized salt, 3% calcium carbonate (limestone).

Purina Layena (Complete Ration)
Flavin concentrate, carotene, cod liver oil, sardine oil, meat scrap, ground oats, fish meal, soy bean oil meal, alfalfa meal, dried buttermilk, dried whey, wheat middlings (standard) beet pulp, corn meal, ½% iodized salt, 4% calcium carbonate (limestone)

Purina Turkey Growena
Flavin concentrate, carotene, meat scrap, soy bean oil meal, alfalfa meal, dried buttermilk, dried whey, ground oats, corn meal, wheat middlings (grey), wheat bran, corn gluten meal, 1.5% calcium carbonate (limestone), ½% iodized salt.

Purina Turkey Growing Chow
Flavin concentrate, carotene, meat scrap, soy bean oil meal, alfalfa meal, dried buttermilk, dried whey, ground oats, corn meal, wheat middlings (standard), wheat bran, 2% calcium carbonate (limestone), ½% iodized salt.

D. F. Riley

Riley's Chick and Broiler Ration
Corn meal, wheat bran, wheat middlings, dried skim milk, beef scraps, oil meal, feeding oatmeal, ground limestone, alfalfa leaf meal, salt and cod liver oil.

Riley's 20% Dairy Ration
Gluten feed, wheat middlings, linseed oil meal or soy bean meal, 41% cottonseed meal, wheat bran, dried brewer grains, ground oats, corn meal or hominy, bone meal, calcium carbonate and salt.

Riley's Growing Mash
Yellow corn meal, wheat bran, wheat middlings, dried skim milk, oil meal, ground oats, calcium carbonate, bone meal, cod liver oil.

Riley's Laying Mash
Wheat middlings, wheat bran, yellow corn meal, gluten feed, ground oats, beef scraps, fish meal, dried skim milk, o. p. oil meal, alfalfa leaf meal, calcium carbonate, salt, fortified cod liver oil.

Roy Grain Co.

Roy's Chick Starter and Grower
Wheat bran, wheat middlings, pulverized oats, yellow corn meal, meat scraps, fish meal, soybean oil meal, dried milk, dehydrated alfalfa leaf meal, fortified sardine oil, oyster shell meal, calcium carbonate and salt.

Roy's Hen Mash
Wheat bran, wheat middlings, pulverized oats, ground heavy oats, yellow corn meal, meat scraps, fish meal, soybean oil meal, dried milk, dehydrated alfalfa leaf meal, fortified sardine oil, oyster shell meal, calcium carbonate and salt.

Ryther & Warren

Blue Tag Dairy Ration
41% Cottonseed meal, soy bean oil meal, corn gluten feed, hominy feed (or corn meal), pure wheat bran, wheat middlings, ground oats, corn distillers grains, dried beet pulp, calcium carbonate and salt.

Minot Chick Mash
Corn meal, pure wheat bran, flour middlings, ground oat meal, meat scraps 50%, fish meal 60%, powdered milk, alfalfa leaf meal, corn gluten meal, shell flour, salt and fortified cod liver oil.

Minot Milk Egg Mash
Corn meal, pure bran, flour middlings, ground oats, meat scraps 50%, fish meal 60%, alfalfa leaf meal, powdered milk, corn gluten meal, shell flour, salt, fortified cod liver oil.

Minot Special Dairy Ration
Wheat bran, ground oats, gluten feed, cottonseed meal, soy bean meal, hominy feed or corn meal, corn distillers grains, dried brewers grains, calcium carbonate and salt.

St. Albans Grain Co.

Hygrade 24 Milk Ration
Old process linseed meal, soybean oil meal, cottonseed meal, corn gluten meal, corn gluten feed, brewers' dried grains, yellow corn meal, hominy feed, ground oats, ground barley, wheat bran, wheat standard middlings, cane molasses, calcium carbonate and salt.

Hygrade 20 Milk Ration
Old process linseed meal, soybean oil meal, cottonseed meal, corn gluten meal, corn gluten feed, brewers' dried grains, yellow corn meal, hominy feed, ground oats, ground barley, wheat bran, wheat standard middlings, cane molasses, calcium carbonate and salt.

Hygrade 16 Milk Ration
Old process linseed meal, soybean oil meal, corn gluten feed, brewers' dried grains, yellow corn meal, hominy feed, ground oats, ground barley, wheat bran, wheat standard middlings, cane molasses, calcium carbonate and salt.

Utility 20 Dairy Ration
Old process linseed meal, soybean oil meal, cottonseed meal, corn gluten feed, brewers' dried grains, yellow corn meal, hominy feed, ground oats, ground barley, oat mill feed (oat hulls, oat shorts and oat middlings), wheat bran, wheat standard middlings, cane molasses, calcium carbonate and salt.

Utility 16 Dairy Ration
Old process linseed meal, soybean oil meal, cottonseed meal, corn gluten meal, corn gluten feed, brewers' dried grains, yellow corn meal, hominy feed, ground oats, ground barley, oat mill feed (oat hulls, oat shorts and oat middlings), wheat bran, wheat standard middlings, cane molasses, calcium carbonate and salt.

Wirthmore 25 Balanced Ration
Old process linseed meal, soybean oil meal, cottonseed meal, corn gluten meal, corn gluten feed, corn distillers' dried grains, yellow corn meal, ground oats, ground barley, wheat bran, wheat standard middlings, cane molasses, steamed bone meal and salt.

Wirthmore Battery Ration
Fortified cod liver oil, dried skimmed milk, dried whey, meat scraps, fish meal, soybean oil meal, dehydrated alfalfa meal, yellow corn meal, ground wheat, wheat bran, wheat standard middlings, ground oats, ground barley, calcium carbonate, manganese carbonate and salt.

Wirthmore Breeder Mash
Fortified cod liver oil, dried skimmed milk, dried whey, liver meal, meat scraps, fish meal, soybean oil meal, corn gluten meal, dehydrated alfalfa meal, yellow corn meal, wheat bran, wheat standard middlings, ground oats, ground barley, calcium carbonate, manganese carbonate and salt.

Wirthmore Complete Chick Starter and Broiler Ration
Fortified cod liver oil, dried skimmed milk, dried whey, meat scraps, fish meal, soybean oil meal, corn gluten meal, alfalfa leaf meal, yellow corn meal, wheat bran, wheat standard middlings, pulverized oats, ground oat groats, calcium carbonate, manganese carbonate and salt.

Wirthmore Complete Egg Ration
Fortified cod liver oil, dried skimmed milk, dried whey, meat scraps, fish meal, soybean oil meal, corn gluten meal, dehydrated alfalfa meal, yellow corn meal, ground wheat, wheat bran, wheat standard middlings, ground oats, ground barley, calcium carbonate, manganese carbonate and and salt.

Wirthmore Complete Growing Ration
Fortified cod liver oil, dried skimmed milk, dried whey, meat scraps, fish meal, soybean oil meal, corn gluten meal, dehydrated alfalfa meal, yellow corn meal, ground wheat, wheat bran, wheat standard middlings, ground oats, ground barley, calcium carbonate and salt.

Wirthmore 16 Dairy Ration with or without Fortified Cod Liver Oil
(Fortified cod liver oil), old process linseed meal, soybean oil meal, cottonseed meal, corn gluten meal, corn gluten feed, corn distillers' dried grains, yellow corn meal, hominy feed, ground oats, ground barley, wheat bran, wheat standard middlings, cane molasses, steamed bone meal, calcium carbonate and salt.

Wirthmore Fleshing Pellets
Fortified cod liver oil, dried skimmed milk, dried whey, meat scraps, soybean oil meal, corn oil meal, dehydrated alfalfa meal, yellow corn meal, wheat bran, wheat standard middlings, pulverized oats, pulverized barley, calcium carbonate, salt and cane molasses.

Wirthmore Fleshing & Fattening Mash
Fortified cod liver oil, dried skimmed milk, dried whey, meat scraps, yellow corn meal, hominy feed, ground wheat, wheat standard middlings, wheat red dog, pulverized oats, feeding oat meal and pulverized barley.

Wirthmore Laying Pellets
Fortified cod liver oil, dried skimmed milk, dried whey, meat scraps, fish meal, soybean oil meal, corn gluten meal, dehydrated alfalfa meal, yellow corn meal, ground wheat, wheat bran, wheat standard middlings, ground oats, ground barley, calcium carbonate, manganese carbonate and salt.

Wirthmore 32% Ration
Old process linseed meal, soybean oil meal, cottonseed meal, corn gluten meal, corn gluten feed, corn distillers' dried grains, wheat bran, cane molasses, steamed bone meal, calcium carbonate and salt.

Wirthmore Record Ration
Old process linseed meal, soybean oil meal, corn gluten meal, corn distillers' dried grains, yellow corn meal, hominy feed, crimped oats, ground oats, ground barley, dried beet pulp, wheat bran, wheat standard middlings, cane molasses, fish meal, steamed bone meal and salt.

Wirthmore Turkey Fattening Ration (or Pellets)
Dried skimmed milk, dried whey, meat scraps, soybean oil meal, corn gluten meal, alfalfa leaf meal, yellow corn meal, wheat bran, wheat standard middlings, wheat red dog, ground oats, ground barley, calcium carbonate and salt.

Smith-Bodfish-Swift Co.

Paramount Mash
Alfalfa meal, meat scraps, steamed bone meal, wheat bran, feeding oat meal, hominy feed, yellow corn meal, wheat standard middlings, fortified cod liver oil, fish meal, calcium carbonate, salt.

Squier & Co.

Squiers Buttermilk Egg Mash
Dried buttermilk, meat scrap, fish meal, bone meal, corn gluten feed, alfalfa meal, wheat bran, wheat middlings, corn meal, ground oats, soybean oil meal, calcium phosphate and salt.

Stoughton Grain Co.

Bay State Breeder & Laying Mash
Dried skim milk, dried whey, beef scrap, pulverized heavy oats, yellow corn meal, wheat flour middlings, wheat bran, alfalfa leaf meal, dehydrated white fish meal, soy bean oil meal, cane molasses, iodine, tri-calcium phosphate, calcium carbonate, yeast, salt, manganese sulphate, cod liver oil and wheat germ oil.

C. H. Symmes & Co.

The Ideal Dairy Ration
Wheat middlings, wheat bran, brewers grains, cottonseed meal, linseed meal, gluten meal, gluten feed, corn meal or hominy, molasses, salt, bone meal, calcium carbonate, ground barley.

Tioga Mills, Inc.

Tasty Laying Food
Dried skim milk, vacuum dried fish meal, meat and bone scrap, soybean oil meal, corn meal, wheat middlings, wheat bran, alfalfa leaf meal, corn gluten meal, salt, cod liver oil, pulverized oats, Colloidaltine (a mineral compound composed of calcium carbonate and the phosphates of calcium, iodine, iron, copper, manganese, sulphur, and 12 other rare minerals, all in colloidal form). (Wheat bran and wheat middlings may contain ground screenings not exceeding mill run.)

Ti-O-Ga E-Gee 20% Dairy Feed
Wheat bran, hominy feed, malt sprouts, brewers dried grains, corn gluten feed, wheat middlings, cane molasses, cottonseed meal, salt, potassium iodide, corn distillers grains, palm kernel oil meal, soybean oil meal, Colloidaltine (a mineral compound composed of calcium carbonate and the phosphates of calcium, iodine, iron, copper, manganese, sulphur, and 12 other rare minerals, all in colloidal form). (Wheat bran and wheat middlings may contain ground screenings not exceeding mill run.)

Ti-O-Ga Starter and Grower
Corn meal, wheat middlings, wheat bran, soybean oil meal, liver meal, powdered buttermilk, vacuum dried fish meal, meat and bone scrap, pulverized oats, linseed oil meal, cod liver oil, dehydrated alfalfa leaf meal, salt, dried whey, potassium iodide, corn gluten meal, Colloidaltine (a mineral compound composed of calcium carbonate and the phosphates of calcium, iodine, iron, copper, manganese, sulphur, and 12 other rare minerals, all in colloidal form). (Wheat bran and wheat middlings may contain ground screenings not exceeding mill run.)

United Cooperative Farmers, Inc.

United Farmers Fattener
Corn meal, ground oats, gluten feed or corn oil meal, feeding oatmeal, dried skim milk, standard middlings, red dog, soya bean meal, salt.

United Farmers Grower
Soya bean meal, corn meal, bran, flour middlings, pulverized oats, meat scraps 50%, fish meal 55%, alfalfa leaf meal, dried skim milk, gluten feed, oyster shell meal, salt, fortified cod liver oil, manganese sulphate.

United Farmers Layer
Corn meal, wheat bran, wheat middlings, pulverized oats, meat scraps 50%, dried skimmilk, soya bean meal, alfalfa meal, fish meal 55%, oyster shell meal, salt, fortified cod liver oil and sardine oil, manganese sulphate.

United Farmers Milk Pep
Cottonseed 41%, old process oil meal, yellow hominy or corn meal, corn gluten feed, pure ground oats 38#, soybean meal, standard or pure bran, corn distillers' grains, calcium carbonate, salt.

United Farmers Milkmaker
Choice yellow hominy, 38# ground oats, standard or pure bran, choice cotton seed 41%, oil meal, corn gluten feed, soya bean meal, corn distillers' grains, calcium carbonate, salt.

United Farmers Starter
Yellow corn meal, wheat bran, wheat middlings, feeding oatmeal, dried skim milk, alfalfa leaf meal, fish meal 55%, meat scraps 50%, oyster shell meal, salt, fortified cod liver oil, manganese sulphate.

Unity Feeds, Inc.

Paycheck 24% Dairy Ration
Distillers' dried grains, corn gluten feed, soya bean oil meal, ground corn, ground oats, wheat and wheat bran processed, cottonseed meal, palm kernel meal, molasses, calcium carbonate, and salt.

Paycheck 20% Dairy Ration
Distillers' dried grains, corn gluten feed, soya bean oil meal, wheat and wheat bran processed, cottonseed meal, palm kernel meal, ground corn, ground oats, molasses, calcium carbonate, and salt.

Paycheck Laying Mash
Dried buttermilk, vitamin tested cod liver oil, alfalfa meal, corn meal, ground wheat, ground oats, wheat bran, wheat middlings, fish meal, meat scraps, linseed oil meal, soya bean meal, calcium carbonate, and salt

Unity Complete Starting and Broiler Mash
Dried buttermilk, vitamin tested cod liver oil, alfalfa leaf meal, fish meal, meat scraps, ground wheat, ground barley, corn meal, ground oats, wheat bran, wheat middlings, calcium carbonate, and salt.

Unity Growing Mash
Dried buttermilk, vitamin tested cod liver oil, alfalfa leaf meal, fish meal, meat scraps, linseed oil meal, wheat bran, wheat middlings, soya bean meal, ground oats, ground wheat, corn meal, calcium carbonate, and salt.

Unity Laying Mash
Dried battermilk, vitamin tested cod liver oil, alfalfa leaf meal, soya bean meal, fish meal, meat scraps, linseed oil meal, wheat bran, wheat middlings, ground oats, ground wheat, corn meal, calcium carbonate, and salt.

Unity Turkey Starting and Growing Mash
Dried buttermilk, vitamin tested cod liver oil, alfalfa meal, soya bean meal, fish meal, meat scraps, wheat bran, wheat middlings, corn meal, ground oats, calcium carbonate, and salt.

C. P. Washburn Co.

"Made Right" Dry Mash
Corn meal, wheat bran, wheat middlings, wheat germ, red dog, 2nd clear flour, ground oatmeal, linseed oil meal, gluten feed, soya bean meal, ground wheat, meat scraps, fish meal, whey and dried milk powder, alfalfa leaf meal, molasses, charcoal, calcium carbonate, salt, cod liver oil, minerals, iron oxide, iodine, manganese.

Wayne County Grangers Feed Corporation

Clyde 20% Dairy Feed
Corn distillers grains, corn gluten feed, ground oats, brewers dried grains, hominy feed or corn meal, cottonseed meal, wheat bran (may contain screenings), malt sprouts, soybean oil meal, cane molasses, ground limestone, old process linseed oil meal, steamed bonemeal, iodized salt.

Cornell Mash
Wheat bran, wheat middlings, corn meal, ground oats, meat scraps, dried skimmilk, dried whey, cod liver oil, iodized salt

Milkproducer 24% Dairy Feed
Corn distillers grains, corn gluten feed, brewers dried grains, choice cottonseed meal, wheat bran (may contain screenings), soybean oil meal, corn hominy feed or corn meal, ground oats, cane molasses, malt sprouts, steamed bonemeal, ground limestone, iodized salt, old process linseed oil meal.

H. K. Webster Co.

Blue Seal All-Mash Growing Ration
Coarse ground No. 2 yellow corn, ground barley, fine ground heavy oats, pure wheat bran, wheat flour middlings, h. g. meat scraps, 55% codfish meal, dried skim milk, alfalfa leaf meal, P. R. cane molasses, calcium carbonate, salt, cod liver oil, corn gluten meal.

Blue Seal Breeders' Mash
Dehydrated alfalfa leaf meal, dried skim milk with Lactoflavin supplement, pure natural cod liver oil, wheat germ oil, h. g. meat and liver meals, 55% fish meal, corn gluten meal, P. R. cane molasses, No. 2 yellow corn meal, pure wheat bran, wheat flour middlings, fine ground heavy oats, ground rolled oats, ground barley, salt, calcium carbonate.

Blue Seal Broiler Ration
Dried skim milk, h. g. meat scraps, 55% codfish meal, alfalfa leaf meal, corn gluten meal, No. 2 yellow corn meal, pure wheat bran, wheat flour middlings, fine ground heavy oats, P. R., cane molasses, calcium carbonate, salt, cod liver oil.

Blue Seal Chick Starter
Coarse ground No. 2 yellow corn, fine ground heavy oats, ground barley, corn gluten meal, pure wheat bran, wheat flour middlings, 60% h. g. meat scraps, 65% fish meal (vacuum process), dried skim milk, alfalfa leaf meal, calcium carbonate, salt, cod liver oil.

Blue Seal "20" Dairy Ration
Old process linseed oil meal, soy bean oil meal, ground oats, malt sprouts, corn oil meal, gluten feed, choice cottonseed meal, hominy feed, wheat bran, corn distillers' grains, dried brewers' grains, P. R. cane molasses, B. S. mineral mixture (white fish meal, edible bone meal, calcium carbonate, dicalcium phosphate, potassium iodide, salt).

Blue Seal "18" Dairy Ration
Fancy crimped oats, fancy ground oats, linseed oil meal (pea size), soy bean oil meal (pea size), rolled barley, hominy feed, wheat bran, corn oil meal, wheat middlings, P. R. cane molasses, B. S. mineral mixture (white fish meal, edible bone meal, calcium carbonate, dicalcium phosphate, potassium iodide, and salt).

Blue Seal Egg Mash
No. 2 yellow corn meal, fine ground heavy oats, pure wheat bran, wheat flour middlings, h. g. meat scraps, 55% fish meal, dried skim milk, alfalfa leaf meal, P. R. cane molasses, corn gluten meal, calcium carbonate, salt, cod liver oil.

Blue Seal Fleshing Pellets
Yellow corn meal, corn oil meal, fine ground oats, ground oat groats, pure wheat middlings, soy bean oil meal, h. g. meat scraps, dried skim milk, P. R. cane molasses, calcium carbonate, salt, cod liver oil.

Blue Seal Growing Mash
Dried skim milk, h. g. meat scraps, 55% codfish meal, alfalfa leaf meal, corn gluten meal, No. 2 yellow corn meal, pure wheat bran, wheat flour middlings, fine ground heavy oats, ground barley, P. R. cane molasses, calcium carbonate, salt, cod liver oil.

Blue Seal Hom-Mix 24% Dairy Ration
Choice cottonseed meal, soy bean oil meal, corn oil meal, malt sprouts, corn gluten meal, oat feed, wheat bran, hominy feed, peanut skins, germs and meal, linseed oil meal, dried brewers' grains, P. R. cane molasses, B. S. mineral mixture (white fish meal, edible bone meal, calcium carbonate, dicalcium phosphate, potassium iodide and salt).

Blue Seal Improved All-Mash Ration
Coarse ground No. 2 yellow corn, ground fancy wheat, fine ground heavy oats, pure wheat bran, wheat flour middlings, h. g. meat scraps, 55% codfish meal, dried skim milk, alfalfa leaf meal, corn gluten meal, P. R. cane molasses, calcium carbonate, salt, cod liver oil.

Blue Seal Improved Balanced Ration
Old process linseed oil meal, soy bean oil meal, ground oats, malt sprouts, corn gluten meal, choice cottonseed meal, hominy feed, wheat bran, corn distillers grains, dried brewers' grains, corn oil meal, P. R. cane molasses, B. S. mineral mixture (white fish meal, edible bone meal, calcium carbonate, dicalcium phosphate, potassium iodide, salt).

Blue Seal Laying Mash
No. 2 yellow corn meal, pure wheat bran, fine ground heavy oats, h. g. meat scraps, corn gluten meal, wheat flour middlings, ground barley, ground fancy wheat, P. R. cane molasses, alfalfa leaf meal, dried skim milk, 55% codfish meal, salt, calcium carbonate, cod liver oil.

Blue Seal Special 20% Dairy Ration
Choice cottonseed meal, soy bean oil meal, corn oil meal, malt sprouts, gluten feed, oat feed, wheat bran, hominy feed, peanut skins, germs and meal, linseed oil meal, dried brewers' grains, corn distillers' grains, P. R. cane molasses, B. S. mineral mixture (white fish meal, edible bone meal, calcium carbonate, dicalcium phosphate, potassium iodide, salt).

Est. M. G. Williams

Williams' Balanced Ration
Corn meal or hominy, linseed oil meal, cotton seed meal, ground oats, gluten feed, dried brewers grains, wheat feed, soy bean meal, calcium carbonate and salt.

Williams' Chick Starter
Corn meal, bran, middlings, feeding oatmeal, leaf meal, soybean oil meal, dried skim milk, meat scraps, fish meal, calcium carbonate, cod liver oil and manganese, and salt.

Williams' Growing Feed
Corn meal, bran, middlings, ground oats, soy bean meal, dried skim milk or dried whey, alfalfa meal, fish meal, meat scraps, calcium carbonate, salt, cod liver oil and manganese.

Williams' Laying Mash
Corn meal, bran, middlings, ground oats, soy bean meal, meat scraps, fish meal, leaf meal, dried skim milk, calcium carbonate, salt, cod liver oil, and manganese.

Stanley Wood Grain Co.

Bliss Dairy Ration
Corn meal (or hominy), cottonseed meal, wheat bran, soybean oil meal, linseed oil meal, wheat middlings, gluten meal, gluten feed, table salt, edible bone meal, calcium carbonate, (beet pulp).

Prepared Complete Growing Ration
Cod liver oil, dried skim milk, dried whey, Lactoflavin concentrate, dried fish meal, whole oat groats, meat scraps, alfalfa leaf meal, yellow corn meal, soybean oil meal, ground wheat, corn gluten meal, ground barley, wheat bran, wheat middlings, feeding oatmeal, calcium carbonate, salt, manganese sulfate.

Preferred Complete Laying Ration
Cod liver oil, dried whey, soybean oil meal, Lactoflavin concentrate, dried skim milk, dried fish meal, whole oat groats, meat scraps, alfalfa leaf meal, yellow corn meal, ground wheat, pulverized oats, wheat bran, wheat middlings, calcium carbonate, table salt, manganese sulfate.

Preferred Laying Mash
Dried skim milk, dried whey, Lactoflavin concentrate, fish meal, meat scraps, alfalfa leaf meal, wheat bran, yellow corn meal, soybean oil meal, pulverized oats, feeding oatmeal, wheat middlings, salt, calcium carbonate, cod liver oil, manganese sulfate.

Woods Dairy Ration
Cottonseed meal, wheat middlings, yellow corn meal (or hominy), soybean oil meal, ground oats, old process linseed oil meal, corn gluten feed, dried beet pulp, wheat bran, salt, calcium carbonate.

Worcester Grain & Coal Co.

Just Right Dairy Ration 24%
Old process linseed oil meal, choice cottonseed meal, choice white or yellow hominy, corn gluten feed, wheat bran, Diamond gluten meal, ground oats or crushed oats, soy bean oil meal, 1% calcium phosphate, 1% salt, with or without molasses.

Just Right Dairy Ration 20%
Old process linseed oil meal, choice cottonseed meal, choice white or yellow hominy, corn gluten feed, wheat bran, Diamond gluten meal, ground oats or crushed oats, soy bean oil meal, 1% calcium phosphate, 1% salt, with or without molasses.

Just Right Growing Mash
Flour middlings, corn meal, wheat bran, feeding oat meal, dried skimmilk, alfalfa leaf meal, fish meal, meat scraps, oyster shell meal, salt, calcium phosphate, cod liver oil.

Just Right Laying Mash
Dried skimmilk, corn meal, flour middlings, standard bran, meat scraps, ground oats, fish meal, alfalfa leaf meal, soy bean meal, oyster shell meal, 1% calcium carbonate, cod liver oil.

Directory of Manufacturers Who Registered Feeding Stuffs for Sale in Massachusetts in 1939

Albers Bros. Milling Co., Seattle, Wash.
Allied Mills, Inc., Chicago, Ill.
American Maize-Products Co., 100 East 42nd St., New York, N. Y.
A. P. Ames Co., 10 Walnut St., Peabody, Mass.
Antelope Valley Alfalfa Milling Co., Lancaster, Cal. (Registered by Mathews & Fritz Co.)
Apothecaries Hall Co., Waterbury, Conn.
Arcady Farms Milling Co., 223 West Jackson Blvd., Chicago, Ill.
Archer-Daniels-Midland Co., Minneapolis, Minn.
Ashcraft-Wilkinson Co., Atlanta, Ga. (Registered also for Rio Grande Citrus Exchange)
Atkinson Milling Co., 900 Flour Exchange, Minneapolis, Minn.
B. & B. Dairy Co., Inc., Margaretville, N. Y.
Edward R. Bacon, 177 Milk St., Boston, Mass.
E. W. Bailey & Co., Montpelier, Vt.
Franklin Baker Division of General Foods Corporation, Hoboken, N. J.
Barber & Bennett, Inc., Albany, N. Y.
Bay State Milling Co., Winona, Minn.
Beacon Milling Co., Inc., Cayuga, N. Y.
Berkshire Coal & Grain Co., Inc., North Adams, Mass.
Albert Bieren, Lexington, Mass.
Bisbee Linseed Co., Inc., Amsterdam, N. Y.
Bisbee Linseed Co., 2100 Lincoln Liberty Bldg., Philadelphia, Penn.
Blatchford Calf Meal Co., Waukegan, Ill.
Borden Co., 350 Madison Ave., New York, N. Y.
Borden Grain Co., 26 Granite St., Taunton, Mass.
Bradley & Baker, 155 East 44th St., New York, N. Y.
C. W. Brister & Son, Auburn, N. Y.
A. H. Brown & Bros., Boston, Mass. (Registered by Mellin's Food Company of North America)
Brown Brothers, Bondsville, Mass.
George B. Brown Corp., Ipswich, Mass.
Buckeye Cotton Oil Co., Cincinnati, Ohio.
C. W. Burckhalter, Inc., 177 Franklin St., New York, N. Y.
Butman Feed Co., Lynn, Mass.
Cairo Meal and Cake Co., Cairo, Ill.
Canada Linseed Oil Mills, Ltd., Montreal and Toronto, Canada.
A. B. Caple Co., Toledo, Ohio.
Center Milk Products Co., Middlebury Center, Penn.
Central Soya Co., Inc., Fort Wayne, Ind.
Chapin & Co., Hammond, Ind.
Checkerboard Elevator Co., St. Louis, Mo. (Registered by Ralston Purina Co.)
Checkerboard Feed Store, Oswego, N. Y. (Registered by Ralston Purina Co.)
Clinton Co., Clinton, Iowa.
Coatsworth & Cooper, 67 Yonge St., Toronto, Canada.
Commander-Larabee Milling Co., Minneapolis, Minn.
Community Feed Stores, Inc., South Deerfield, Mass.
Consolidated Chemical Industries, Inc., Woburn, Mass.
Consolidated Rendering Co., 178 Atlantic Ave., Boston, Mass.
Continental Distilling Corp., 1800 West Lehigh Ave., Philadelphia, Penn.
Copeland Flour Mills, Ltd., Midland, Ontario, Canada.
Corn Products Refining Co., 17 Battery Place, New York, N. Y.
Nicolas Courcy Grain Co., 12 Waverly St., Taunton, Mass.
Cover & Palm Co., 150 Middle St., Lowell, Mass.
Chas. M. Cox Co., 177 Milk St., Boston, Mass. (Registered for Sherwin-Williams Company of Canada, Ltd., and Kansas Milling Co.)
Curley Grain and Fuel Co., Wakefield, Mass.
Dairymen's League Co-Operative Association, Inc., 11 West 42nd St., New York, N. Y.
Dawe's Vitamelk Co., 4800 South Richmond Ave., Chicago, Ill.
Decatur Milling Co., Inc., Decatur, Ill.
Dehydrating Process Co., 60 Mt. Washington Ave., Boston, Mass.
Delaware Mills, Inc., Deposit, N. Y. (Registered also for Squier & Co.)
Denver Alfalfa Milling & Products Co., Lamar, Col.
Dewey Bros. Co., Blanchester, Ohio.
Frank Diauto, 87 Warren St., Randolph, Mass
F. Diehl & Son, Inc., Wellesley, Mass.
Dietrich & Gambrill, Inc., Frederick, Md.
Dominion Linseed Oil Co., Ltd., 837 Mill St., Montreal, Canada.
Dreyer Commission Co., St. Louis, Mo.
Eagle Roller Mill Co., New Ulm, Minn.
East Bridgewater Farmers' Exchange, Inc., East Bridgewater, Mass.
Eastern Grain Co., Bridgewater, Mass.
Eastern States Farmers' Exchange, Springfield, Mass.
B. A. Eckhart Milling Co., 1300 Carroll Ave., Chicago, Ill.
Economy Grocery Stores Corp., 393 D Street, Boston, Mass.
Michael W. Ellis, 19 Walnut St., Peabody, Mass.
Elmore Milling Co., Inc., Oneonta, N. Y.
John W. Eshelman & Sons, Lancaster, Penn.
Evans Milling Co., Indianapolis, Ind.
Excelsior Milling Co., Minneapolis, Minn
Farm Service Co., Fitchburg, Mass.
Farmers Feed Co., 532 East 76th St., New York, N. Y.
Federal Mill, Inc., Lockport, N. Y.
Fernando Valley Milling & Supply Co., Van Nuys, Cal.
Ferneau Grain Co., Blanchester, Ohio.
Finger Lakes & Hudson Flour Mills, Inc., Geneva, N. Y.
Finger Lakes & Hudson Flour Mills, Inc., 7 Madison St., Troy, N. Y.
First National Stores, Inc., 5 Middlesex Ave., Somerville, Mass.

Flory Milling Co., Inc., Bangor, Penn.
Fred A. Fountain, Inc., Taunton, Mass.
Dean S. French, 17 Columbia St., Stoughton, Mass.
Paul Fuller & Sons, 8 Mooney Ave., Salem, Mass.
Funk Bros. Seed Co., Bloomington, Ill.
J. B. Garland & Son, Inc., Worcester, Mass.
General Foods Corp., Battle Creek, Mich.
General Foods Corp., Corn Mill Division, Kankakee, Ill.
General Foods Corp., Franklin Baker Division, Hoboken, N. J.
General Mills, Inc., Minneapolis, Minn.
W. K. Gilmore & Sons, Inc., Walpole, Mass.
Glidden Co., 5165 West Moffat St., Chicago, Ill.
Gloucester Dehydrating Co., Gloucester, Mass.
Goode Grain Co., 452 Broadway, Lowell, Mass.
Gorton-Pew Fisheries Co., Ltd., Gloucester, Mass.
Grand Isle County Cooperative Creamery Assn., Inc., Grand Isle, Vt.
Grand Union Co., 233 Broadway, New York, N. Y.
D. H. Grandin Milling Co., Jamestown, N. Y.
Great Atlantic & Pacific Tea Co., New York, N. Y.
Green Acre Farms, Nazareth, Penn.
Gwinn Milling Co., Columbus, Ohio.
Hales & Hunter Co., 166 West Jackson Blvd., Chicago, Ill.
Wm. Hamilton & Son, Inc., Caledonia, N. Y.
Dieudonne Harbeck, 405 Earl St., New Bedford, Mass.
Hecker H-O Division of Hecker Products Corp., Buffalo, N. Y.
Hercules Powder Co., Dairy Products Division, 228 North LaSalle St., Chicago, Ill.
D. B. Hodgkins' Sons, Gloucester, Mass.
Hood Mills Co., Baltimore, Md.
E. C. & W. L. Hopkins, Inc., Greenfield, N. H.
Hoosier Soybean Mills, Inc., Marion, Ind.
Horvitz Grain Co., 742 Acushnet Ave., New Bedford, Mass.
Hubinger Co., Keokuk, Iowa
Humphreys-Godwin Co., Memphis, Tenn.
Illinois Cereal Mills, Inc., Paris, Ill.
International Milling Co., Minneapolis, Minn.
Ismert-Hincke Milling Co., Kansas City, Mo.
Jaquith & Co., 305 Main St., Woburn, Mass.
Kansas Flour Mills Corp., Kansas City, Mo.
Kansas Milling Co., Wichita, Kan. (Registered by Chas. M. Cox Co.)
Kasco Mills, Inc., Waverly, N. Y.
Kellogg Co., Battle Creek, Mich.
Spencer Kellogg & Sons, Inc., 98 Delaware Ave., Buffalo, N. Y.
Kemo Mills, Toledo, Ohio.
Keystone Dairy Co., 535 Carlton Ave., Brooklyn, N. Y.
H. H. King Flour Mills Co., Minneapolis, Minn.
King Midas Flour Mills, Minneapolis, Minn.
Kraft-Phenix Cheese Corp., Chicago, Ill.
Chas. A. Krause Milling Co., Milwaukee, Wis.
Lake of the Woods Milling Co., Ltd., Montreal, Canada.
Lakeside Milling Co., Ltd., Toronto, Canada.
Larabee Flour Mills Co., Kansas City, Mo.
Larrowe Milling Co., Division of General Mills, Inc., Detroit, Mich.
Franklin L. Lewi, Inc., 2 Broadway, New York, N. Y.
John T. Lewis & Bros. Co., 910 Widener Bldg., Philadelphia, Penn.
L. B. Lovitt & Co., Memphis, Tenn.
A. S. MacDonald Commission Co., 404 Grain & Flour Exchange, Boston, Mass.
(Registered for Parrish & Heimbecker, Ltd.)
Maine Fish Meal Co., Portland, Maine.
Mansfield Coal & Grain Co., Mansfield, Mass.
Mansfield Milling Co., 1 Samoset Ave., Mansfield, Mass.
Maritime Milling Co., Inc., Buffalo, N. Y.
C. J. Martenis Grain Co., Produce Exchange Bldg., New York, N. Y.
Mathews & Fritz Co., 124 West 4th St., Los Angeles, Cal.
(Registered for Antelope Valley Alfalfa Milling Co.)
Meadow Brook Farms, John A. Miller, Nazareth, Penn
Mellin's Food Company of North America, 41 Central Wharf, Boston, Mass.
(Registered for A. H. Brown & Bros.)
Merrimack Farmers' Exchange, Inc., Concord, N. H.
Middlesex County Farm Bureau Assn., 131 Lexington St., Waltham, Mass.
Midland Flour Milling Co., Kansas City, Mo.
Miller Cereal Mills, Omaha, Neb.
Miner-Hillard Milling Co., Wilkes-Barre, Penn.
Mississippi Valley Grain & Feed Co., Muscatine, Iowa.
Geo. Q. Moon & Co., Inc., Binghamton, N. Y.
Moore-Lowry Flour Mills Co., Coffeyville, Kan.
Jas. F. Morse & Co., 11 Horace St., Somerville, Mass.
National Biscuit Co., Shredded Wheat Bakeries, Niagara Falls, N. Y.
National Milling Branch of National Biscuit Co., 2221 Front St., Toledo, Ohio.
Neumond Co., 309 Merchants Exchange Bldg., St. Louis, Mo.
New England Dairies, Inc., 142 Cambridge St., Charlestown, Mass.
New England Grain Co., 390 Commercial St., Portland, Maine.
New England Rendering Co., Brighton, Mass.
New England Retail Grain Dealers Cooperative Association, Inc., Springfield, Mass.
Norris Grain Co., 141 West Jackson Blvd., Chicago, Ill.
North East Feed Mill Co., Minneapolis, Minn.
Ogden Grain Co., Utica, N. Y.
Ogilvie Flour Mills Co., Ltd., Montreal, Canada.
Old Fort Mills, Inc., Marion, Ohio.
Park & Pollard Co., Inc., 356 Hertel Ave., Buffalo, N. Y.
George H. Parker Grain Co., Danvers, Mass.

Parrish & Heimbecker, Ltd., Toronto, Canada. (Registered by A. S. MacDonald Commision Co.)
Patent Cereal Co., Geneva, N. Y.
Pecos Valley Alfalfa Mill Co., Chandler, Ariz.
Penick & Ford Ltd., Inc., Cedar Rapids, Iowa.
Perkins Oil Co., Memphis, Tenn.
Phaneuf & Son, 188 Rivet St., New Bedford, Mass.
Phoenix Flour Mills, Davenport, Iowa.
Pillsbury Flour Mills Co., Minneapolis, Minn.
Maurice Pincoffs Co., 1 Main St., Houston, Texas.
Pittsburgh Plate Glass Co., Newark, N. J.
W. N. Potter Grain Stores, Inc., Greenfield, Mass.
R. C. Pratt, 68 King St. E., Toronto, Canada.
H. C. Puffer Co., Springfield, Mass.
Quaker Oats Co., 141 West Jackson Blvd., Chicago, Ill.
Ralston Purina Co., St. Louis, Mo. (Registered also for Checkerboard Elevator Co. and Checkerboard Feed Store.)
Reading Milling Co., Reading, Penn. (Successor to F. S. Wertz & Son.)
John Reardon & Sons Division of Wilson & Co., Inc., Cambridge, Mass.
Rice Laboratories, Inc., Dassel, Minn.
D. F. Riley, North Hatfield, Mass.
Rio Grande Valley Citrus Exchange, Weslaco, Texas. (Registered by Ashcraft-Wilkinson Co.)
Rodney Milling Co., Kansas City, Mo.
Roy Grain Co., Anawam St., Rehoboth, Mass.
Russell-Miller Milling Co., Minneapolis, Minn.
Ryther & Warren, Belchertown, Mass.
St. Albans Grain Co., St. Albans, Vt. (Registered also for Taft Bros.)
St. Lawrence Flour Mills Co., Ltd., 2110 Notre Dame St. West, Montreal, Canada.
Schenley Distilleries, Inc., 350 Fifth Ave., New York, N. Y.
Schoeneck Farms, Inc., Nazareth, Penn.
Schuyler Warehouse, Inc., Albany, N. Y.
Joseph E. Seagram & Sons, Inc., Louisville, Ky.
Sherwin Williams Co., 101 Prospect Ave., N. W., Cleveland, Ohio.
Sherwin-Williams Company of Canada, Ltd. (Registered by Chas. M. Cox Co.)
W. J. Small Co., Neodesha, Kan.
Mrs. Annie P. Smith, 102 Hale St., Haverhill, Mass.
Smith-Bodfish-Swift Co., Vineyard Haven, Mass.
Snow Brokerage Co., 3039 East 12th St., Los Angeles, Cal. (Registered for C. C. Stafford Milling & Warehouse Co., Inc.)
Southern Cotton Oil Co., Atlanta, Ga.
Soya Processing Co., 505 Palmer St., Wooster, Ohio.
Squier & Co., Monson, Mass. (Registered by Delaware Mills, Inc.)
C. C. Stafford Milling & Warehouse Co., Inc., Puente, Cal. (Registered by Snow Brokerage Co.)
A. E. Staley Manufacturing Co., Decatur, Ill.
Standard Milling Co., 309 West Jackson Blvd., Chicago, Ill.
David Stott Flour Mills, Inc., 4895 Grand River Ave., Detroit, Mich.
Stoughton Grain Co., Stoughton, Mass.
Stratton & Co., Concord, N. H.
Stratton Grain Co., 741 North Milwaukee St., Milwaukee, Wis.
Sunset Feed & Grain Co., Inc., 610 Chamber of Commerce, Buffalo, N. Y.
Swift & Company (Oil Mills), Atlanta, Ga.
Swift & Company (Soy Bean Mill), Champaign, Ill.
C. H. Symmes & Co., Winchester, Mass.
Taft Bros., Uxbridge, Mass. (Registered by St. Albans Grain Co.)
Tioga Mills, Inc., Waverly, N. Y.
Toledo Soybean Products Co., 215 Pontiac St., Toledo, Ohio.
Tremaine Alfalfa Ranch & Milling Co., Inc., Mesa, Ariz.
Estate of Harry C. Trexler, Trexler Farms Division, 1227 Hamilton St., Allentown, Penn.
Jacob Trinley & Sons, Linfield, Penn.
Union Starch & Refining Co., Columbus, Ind.
United Cooperative Farmers, Inc., Fitchburg, Mass.
United Farmers Cooperative Creamery Assn., Inc., Charlestown, Mass.
Unity Feeds, Inc., 177 Milk St., Boston, Mass.
Van Iderstine Co., Long Island City, N. Y.
Van Vechten Milling Corp., 196 Smith St., Rochester, N. Y.
Arthur Ventura Grain Co., 7 Purchase St., Taunton, Mass.
Vitality Mills, Inc., Board of Trade Bldg., Chicago, Ill.
Voigt Milling Co., Grand Rapids, Mich.
Hiram Walker & Sons, Inc., Foot of Edmund St., Peoria, Ill
C. P. Washburn Co., Middleboro, Mass.
Wayne County Grangers Feed Corp., Clyde, N. Y.
H. K. Webster Co., Lawrence, Mass.
Western Condensing Co., Petaluma, Cal.
Est. M. G. Williams, Taunton, Mass
C. H. Williamson & Co., Inc., 215 Merchants Exchange Bldg., St. Louis, Mo. (Successors to Bartlett Frazier Co.)
Wilmington Packing Co., New Boston St., Woburn, Mass.
Wilson & Co., 41st St. and South Ashland Ave., Chicago, Ill.
Stanley Wood Grain Co., Taunton, Mass.
Worcester Grain & Coal Co., Worcester, Mass.

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MASSACHUSETTS

AGRICULTURAL EXPERIMENT STATION

CONTROL SERIES BULLETIN NO. 100 DECEMBER, 1939

Inspection of Commercial Fertilizers

By H. D. Haskins

This is the sixty-sixth report of the Massachusetts Fertilizer Control made in accordance with Chapter 94, Sections 250 to 261, inclusive, of Massachusetts General Laws 1920, as amended by Chapter 67, Acts of 1933.

Massachusetts State College
Amherst, Mass.

INSPECTION OF COMMERCIAL FERTILIZERS FOR THE SEASON OF 1939

By H. D. Haskins, Official Chemist[1]

CONTENTS

MANUFACTURERS AND BRANDS

Registrations have been perfected in Massachusetts during 1939 by 103 firms, covering 538 brands of mixed fertilizer and unmixed fertilizing materials. The nature of these products is shown by the following classification:

Complete fertilizers	335
Ammoniated superphosphates	3
Superphosphates with potash	1
Dry ground fish, tankage and ground bone	45
Fertilizer simples, including organic nitrogen compounds	105
Tobacco stems	1
Pulverized manures	30
Cotton hull ashes and wood ashes	8
Peat products	3
Stone meal	1
Nitrate of potash	6
Total	538

[1] Assisted by H. Robert DeRose, John W. Kuzmeski, Albert F. Spelman, Leo V. Crowley, Chemists; James T. Howard, C. L. Whiting, L. A. Graves, Sampling Agents; George E. Taylor, Laboratory Assistant; Cora B. Grover, Clerk.

The following brands were not found on display by the sampling agent at any point in the state and therefore do not appear in the tables of analyses.

Brands of Fertilizers Registered but Not Sampled

Apothecaries Hall Co.
Liberty Corn 2–10–2
Liberty High Grade Market Gardeners (Extra Organic) 5–8–7
Cotton Hull Ashes (0–0–25)
Dry Ground Fish (9.46–5–0)
Linseed Meal 32% Protein (Muir & Co.) (5.12–0–0)
Soy Bean Meal (Archer-Daniels-Midland) 44% Protein (7.04–0–0)

Armour Fertilizer Works
Armours Big Crop Fertilizer 4–10–4
Armours Big Crop Tobacco Special 7–3–7
Armours Fertilizer 6–8–6
Special Tobacco Mixture 4.48–2–14.74

Eastern States Farmers' Exchange
Eastern States Cottonseed Meal (6.5–0–0)

Hy-Trous Co.
Hy-Trous Scientific Plant Food 5–½–2

Independent Manufacturing Co.
Independent's Fine Ground Bone Meal (1.5–28–0)

International Agricultural Corp.
International 5–10–5

Old Deerfield Fertilizer Co., Inc.
Linseed Meal (Kellogg-Miller) (5.12–0–0)

Rogers & Hubbard Co.
Red H Brand 4–12–4
Red H Brand 5–6–4

Salem Chemical & Supply Co.
Plant Food 3–4–3 (*a*)

a Sales discontinued May 1, 1939.

Drawing of Samples

Between April 1 and June 15, three sampling agents made a thorough canvass of the State: James T. Howard in Hampshire, Hampden, Franklin, and Berkshire Counties; L. A. Graves in Norfolk, Bristol, Plymouth, Barnstable, and Dukes Counties; and C. L. Whiting in Essex, Middlesex, Suffolk, and Worcester Counties. They visited 173 towns, took 1,818 samples, representing 519 brands, from stock in the possession of 415 agents or owners, and called upon 305 agents where no samples were drawn because the agency had been discontinued, the stock was all sold out, or sufficient samples had already been taken of the brands found. They sampled 23,602 sacks, representing 23,020 tons of fertilizer. One ton was sampled to every two and four-fifths tons sold in the state.

FERTILIZER TRADE VALUES

The fertilizer trade values are based on average wholesale quotations of fertilizer chemicals and unmixed materials, as taken from trade journals for six months ending March 1, 1939, to which 20 per cent has been added for overhead. When appropriate, an additional allowance has also been made for bags, labor, and transportation.

Fertilizer Trade Values

Form of Plant Food	Value per Pound	Unit Value
Nitrogen		
In ammonia salts	$0.088	$1.76
In nitrates	.109	2.18
Organic nitrogen in fish	.3125	6.25
Organic nitrogen in blood, meat and hoof meal	.2175	4.35
Organic nitrogen in fine[1] bone and tankage	.256	5.12
Organic nitrogen in coarse[1] bone and tankage and in pulverized manures	.1835	3.67
Organic nitrogen in mixed fertilizers	.220	4.40
Organic nitrogen in cottonseed meal, castor pomace, linseed meal, soybean meal, etc.	.21	4.20
Organic nitrogen in urea	.088	1.76
Organic nitrogen in cyanamid	.084	1.68
Phosphoric Acid		
Available (soluble in water and neutral citrate of ammonia)	.055	1.10
In precipitated bone	.047	.94
In basic slag phosphate	.082	1.64
In fine[1] bone and tankage, and in fish	.036	.72
In coarse[1] bone and tankage	.0315	.63
In pulverized manures, seed residues, and ashes	.0315	.63
Insoluble in neutral citrate of ammonia in mixed fertilizers	.017	.34
Potash		
As sulfate	.05	1.00
As muriate	.038	.76
As carbonate	.08	1.60
As nitrate	.0428	.856
In potash-magnesia sulfate	.0655	1.31
In cotton hull and wood ashes (soluble)	.065	1.30
In organic vegetable compounds, sheep manure, insoluble in ashes	.04	.80
Magnesium Oxide		
Water soluble from Kieserite, Emjeo, sulfate of potash-magnesia	.0633	1.27
In form of finely ground dolomite	.00625	.125

[1] Fine bone and tankage refers to particles which, as sampled, will pass through a sieve with circular openings 1/50 of an inch in diameter. Coarse bone and tankage refers to that portion which will not pass through the sieve.

FERTILIZER TONNAGE

Tonnage of Mixed and Unmixed Fertilizers Sold in Massachusetts

	July 1, 1936, to July 1, 1937	July 1, 1937, to July 1, 1938	July 1, 1938, to July 1, 1939
Mixed fertilizers	48,527	45,339	41,616
Fertilizer chemicals and materials unmixed	24,004	22,360	20,800*
Pulverized natural manures	1,743	1,476	1,558
Totals	74,274	69,175	63.974

* Does not include 876 tons of 45% superphosphate and 903 tons of 47% superphosphate distributed by the A.A.A.

There were 5,201 tons less fertilizer sold in the state in 1939 than during the previous year. The tonnage of mixed fertilizer was 3,723 less, and that of the fertilizer chemicals and unmixed materials was 1,560 less than for 1938. Pulverized manures showed a decrease of 82 tons. Of the total tonnage sold, 65.05 per cent was mixed fertilizer, 32.51 per cent was unmixed materials, and 2.44 per cent was dried and pulverized natural manures.

Plant Food Tonnage

	Nitrogen		Phosphoric Acid		Potash	
	1938	1939	1938	1939	1938	1939
Mixed fertilizers *a*	2,355	2,131	3,796	3,529	3,326	3,053
Fertilizer chemicals and materials unmixed	1,434	1,324	2,015	1,974*b*	745	775
Pulverized natural manures	32	33	25	28	41	43
Totals	3,821	3,488	5,836	5,531	4,112	3,871

a Does not include plant food tonnage of fertilizer mixed for special orders.
b Does not include 825 tons of available phosphoric acid from 1,779 tons of superphosphate distributed by the Agricultural Adjustment Administration.

There were 879 less tons of plant food sold in the state than during 1938, of which 333 tons were nitrogen, 305 tons available phosphoric acid, and 241 tons potash.

There were 12,890 tons of plant food sold, of which 27 per cent was nitrogen, 43 per cent available phosphoric acid, and 30 per cent potash. Mixed fertilizers furnished 67.6 per cent of the plant food, chemicals and unmixed materials 31.6 per cent, and pulverized manures 0.8 per cent.

The three plant food elements were furnished in the following proportions by the mixed fertilizers and the unmixed materials, including the pulverized manures: nitrogen, 61 per cent from mixed and 39 per cent from unmixed; phosphoric acid, 64 per cent from mixed and 36 per cent from unmixed; potash, 79 per cent from mixed and 21 per cent from unmixed.

The tonnage tables present figures for one year, July 1, 1938, to July 1, 1939, for both mixed fertilizers and unmixed fertilizer materials. In case of the mixed fertilizers, the grade represents the plant food guarantee and is expressed in the order of nitrogen, available phosphoric acid, potash.

Tonnage of Mixed Fertilizers

Complete Fertilizers

14 Per Cent or More of Available Plant Food (Nitrogen, Available Phosphoric Acid and Potash)

Grade	Tonnage	Brands	Grade	Tonnage	Brands
5–8–7	11,004	30	8–8–4	87	–
4–8–4	4,280	22	7–14–19	79	–
4–8–7	2,618	17	6–8–2	66	–
6–3–6	2,321	9	2–8–10	65	–
4–8–10	2,110	17	6–7–4	65	–
8–16–16	1,629	8	4–9–3	61	–
7–6–6	1,410	12	8–5–2	59	–
4–8–8	1,352	9	8–6–4	54	–
5–8–10	1,225	10	6–12–12	53	–
4–12–4	1,171	12	7–7–6	53	–
7–7–7	976	9	7–12–10	48	–
5–10–5	812	8	8–4–8	45	–
6–3–7	760	–	10–3–3	43	–
3–10–4	747	11	4–10–3	43	–
6–8–6	514	–	7–7–5	41	–
3–10–6	477	–	8–8–8	37	–
8–24–8	442	–	8–20–12	26	–
8–16–14	434	8	9–6–6	23	–
5–5–15	428	11	7–3–7	22	–
10–6–4	402	–	5–9–8	21	–
8–16–20	358	8	8–6–3	21	–
4–10–4	352	–	2.5–4–8	19	–
5–10–4	323	–	3–7–6	17	–
5–6–4	288	–	10–5–5	17	–
12–16–12	259	–	5–7–3	16	–
4–16–20	237	–	5–9–2	16	–
8–6–2	184	5	5–8–5	14	–
3–12–6	172	–	6–12–4	14	–
4–12–6	162	–	5–10–7	12	–
8–5–8	158	–	8–6–6	12	–
5–10–10	152	–	10–2–2	11	–
6–6–5	139	–	7–8–3	11	–
4–10–6	138	–	Miscellaneous	73	26
5–5–5	128	–	Special Mixtures	1,426	–
4–3–12	105	–			
7–5–3	96	–	Totals	41,033	318

Less than 14 Per Cent of Available Plant Food (Nitrogen, Available Phosphoric Acid and Potash)

5–3–5	415	6	5–6–2	12	–
4–4–1	21	–	Miscellaneous	19	8
3–3–3	18	–			
			Totals	485	17

Superphosphate with Potash			Ammoniated Superphosphate		
0–20–20	97	2	4–4–0	1	1

Of the 41,616 tons of mixed fertilizer sold, 70 per cent was furnished by 10 grades and 146 brands. Double- and multiple-strength grades totaled 3,523 tons and 36 brands, which was 165 tons more than during the previous year. Although the total tonnage of mixed fertilizers shows a decrease of 3,723 tons, or 8.2 per cent, the double- and multiple-strength grades show an increase of 165 tons, or 4.9 per cent. This indicates a continuing trend toward the manufacture of higher grade fertilizers.

Of the mixed fertilizer sold, 98.6 per cent contained 14 per cent or over of available plant food.

There were 153 tons less of low-analysis (less than 14 per cent available plant food) complete fertilizers sold than in 1938. The 5–3–5 grade, comprising 6 brands, furnished 85.6 per cent of the tonnage of this class of goods.

In the following table are listed ten of the most popular grades of mixed fertilizer together with the tonnage of each sold in Massachusetts for the years 1938 and 1939.

1938		1939	
Grade	Tonnage	Grade	Tonnage
5–8–7	12,186	5–8–7	11,004
4–8–4	6,090	4–8–4	4,280
4–8–7	3,123	4–8–7	2,618
7–6–6	2,507	6–3–6	2,321
4–8–10	2,227	4–8–10	2,110
6–3–6	1,943	8–16–16	1,629
4–8–8	1,609	7–6–6	1,410
8–16–16	1,494	4–8–8	1,352
5–8–10	1,303	5–8–10	1,225
4–12–4	1,078	4–12–4	1,171

The tonnage of unmixed materials, as shown in the following table, was distributed as follows: nitrogen products, 38 per cent; phosphoric acid products, 37 per cent; potash products, 6 per cent; tankage, fish, bone, nitrate of potash, Ammo-Phos, and wood ashes, 18 per cent; and miscellaneous, 1 per cent. Pulverized animal manures are not included.

Tonnage of Unmixed Fertilizing Materials

Material	Tonnage	Brands	Material	Tonnage	Brands
Superphosphate 16%	4,062	11	Linseed meal	117	–
Superphosphate 20%	3,407	14	Cotton hull ashes	105	7
Nitrate of soda	3,052	6	Organo	91	–
Cottonseed meal	1,938	7	Superphosphate 40%	87	–
Bone meal	1,772	25	Castor pomace	70	7
Pulverized animal manures	1,558	30	Ammo-Phos	57	–
Milorganite	899	–	Urea	50	–
Sulfate of ammonia	891	8	Basic slag phosphate	40	–
Cyanamid	853	–	Wood ashes	40	–
Soybean meal	841	5	Sulfate of potash	35	–
Muriate of potash 60%	734	9	Stone meal	23	–
Muriate of potash 50%	387	–	Precipitated bone	22	–
Nitrate of potash	360	6	Dried blood	18	–
Animal tankage	246	9	Horn and hoof meal	10	–
Dry ground fish	216	9	Miscellaneous	25	5
Peat	181	–			
Cal-Nitro	171	–	Totals	22,358*	200

* In addition there were 876 tons of 45% superphosphate and 903 tons of 47% superphosphate distributed by the Agricultural Adjustment Administration.

MIXED FERTILIZERS

Deficiency Statistics for Mixed Fertilizers

Manufacturer	Number of Brands		Number of Tests or Determinations				
	Analyzed	Approximately Equal to Guarantee in Commercial Valuation	Totals (a)	Not Exceeding ¼ Per Cent Below Guarantee	Between ¼ and ½ Per Cent Below Guarantee	Between ½ and ¾ Per Cent Below Guarantee	More than ¾ Per Cent Below Guarantee
Acme Guano Co.	9	9	27	3	3	0	2
Agricultural Laboratories, Inc.	1	1	3	0	0	0	0
American Agricultural Chemical Co.	50	47	149	39	11	2	0
Apothecaries Hall Co.	20	20	59	1	1	1	0
Armour Fertilizer Works	26	25	78	20	6	2	2
Ernest J. Bantle	1	1	3	0	0	0	0
F. A. Bartlett Tree Expert Co.	1	1	3	1	0	0	0
Belmont Gardens	1	1	3	0	0	0	0
Berkshire Chemical Co.	13	13	39	7	1	0	1
Joseph Breck & Sons	4	4	12	0	0	0	0
C. & R. Sales Co.	1	1	3	0	0	1	0
Clay & Son, Ltd.	1	1	3	0	0	0	0
Collins Seed Service Co.	4	4	12	3	0	0	0
Consolidated Rendering Co.	22	22	68	8	3	1	0
Davey Tree Expert Co.	1	1	3	1	1	0	0
Davison Chemical Corp.	2	2	6	1	2	0	0
Dehydrating Process Co.	1	1	3	1	0	0	0
Eastern States Farmers' Exchange	16	16	61	8	2	1	1
Ellis Laboratories, Inc.	1	1	3	0	0	1	0
Thomas W. Emerson Co.	1	1	3	0	0	0	0
Excell Laboratories	1	1	3	0	1	0	0
Fertilizer Sales Corp.	4	4	12	0	0	0	0
H. L. Frost & Higgins Co.	2	2	6	0	0	0	0
Garden Hose Spray Co., Inc.	1	1	3	1	0	0	0
Goulard & Olena, Inc.	3	3	9	3	1	0	0
Thomas J. Grey Co.	1	0	3	0	0	0	1
Hartney-Amalia, Inc.	1	1	3	0	0	0	0
Allen Hersom Co.	2	2	6	0	1	0	0
Gerald S. Higgins	1	1	3	0	1	0	1
A. H. Hoffman, Inc.	1	1	3	0	0	0	0
Independent Manufacturing Co.	1	1	3	0	0	0	0
International Agricultural Corp.	21	21	69	15	2	1	0
Gerald E. A. Leitch	1	1	3	1	0	0	0
McClain Brothers Co.	1	1	3	0	0	0	0
Mechling Bros. Division of General Chemical Co.	1	1	3	0	0	0	0
Miller Chemical & Fertilizer Corp.	7	7	21	3	2	1	1
New England Toro Co.	1	1	3	1	0	0	0
Old Deerfield Fertilizer Co., Inc.	18	18	57	1	0	0	0
Olds & Whipple, Inc.	14	14	42	0	0	0	1
F. G. Phillips Co.	1	1	3	0	0	0	0
Plantabbs Corp.	1	1	3	0	0	0	0
Plantspur Products Co., Inc.	1	1	3	0	0	0	0
Rogers & Hubbard Co.	32	32	96	8	2	1	0
O. M. Scott & Sons Co.	1	1	3	0	0	0	0
Standard Wholesale Phosphate & Acid Works, Inc.	6	6	18	0	3	1	0
Sutton & Sons, Ltd.	1	1	3	0	0	0	0
Swift & Company Fertilizer Works	7	6	21	6	2	0	1
F. Sylvester & Son	1	1	3	0	0	0	0
Synthetic Nitrogen Products Corp.	1	1	3	0	0	0	0
Tennessee Corp.	2	2	6	1	0	0	0
Universal Chemical Corp.	2	2	6	1	0	1	0
Virginia-Carolina Chemical Corp.	1	1	3	0	1	0	0
C. P. Washburn Co.	4	4	12	1	1	0	0
Winslow Nurseries	1	1	3	0	0	0	0
Woodruff Fertilizer Works, Inc.	7	7	21	3	1	0	0
Totals	327	321	1,003	138	48	14	11

a Several analyses of the same brand have been averaged and recorded in the table as one analysis. Analyses of fertilizer left over from previous year not included.

Summary of Deficiencies in Mixed Fertilizers

	1937	1938	1939
Brands deficient in one element	77	89	120
Brands deficient in two elements	16	20	39
Brands deficient in three elements	2	3	4
Brands deficient in nitrogen	39	35	100
Brands deficient in available phosphoric acid	29	70	41
Brands deficient in potash	47	32	67
Brands deficient in magnesium oxide	0	2	2

Serious Commercial Shortages in Mixed Fertilizers

Amount of Shortage Per Ton	Number of Samples
More than $5	none
Between $4 and $5	none
Between $3 and $4	none
Between $2 and $3	1
Between $1 and $2	11

Of the 327 brands analyzed, 165, or 50 per cent, showed no deficiencies. Out of 1,003 plant food guarantees made, 79 per cent were fully maintained.

The deficiency table shows the following statistics:

Deficiencies not exceeding ¼ of one per cent, 138.
Deficiencies between ¼ and ½ of one per cent, 48.
Deficiencies between ½ and ¾ of one per cent, 14.
Deficiencies more than ¾ of one per cent, 11.

Of the total number of guarantees of each element made, 31 per cent of the nitrogen, 13 per cent of the available phosphoric acid, and 21 per cent of the potash were not met. Sixty-three of the 101 nitrogen deficiencies, 23 of the 41 available phosphoric acid deficiencies, and 49 of the 67 potash deficiencies did not exceed ¼ of one per cent.

Compared with the 1938 inspection, there were 66 more shortages in nitrogen, 29 less in available phosphoric acid, and 35 more in potash.

In the case of those fertilizers which did not conform strictly to the guarantee, the discrepancies were of such a character as to make it evident that there was no intentional attempt at violation of the regulations.

Fifteen firms have registered five or more brands of mixed fertilizers. On the basis of composition found by analysis as well as upon tonnage sold, the following table shows to what extent each manufacturer was successful in avoiding deficiencies in plant food guarantees in his mixtures. Nine of the fifteen firms provided an average overrun in the three major plant food elements guaranteed, considered desirable in safe fertilizer practice.

Mixing Efficiency Table

Manufacturer	Average Percentage of Plant Food Above or Below the Minimum Guarantee		
	Nitrogen	Available Phosphoric Acid	Potash
Acme Guano Co.	−.006	+.23	+.59
American Agricultural Chemical Co.	−.01	+.26	+.14
Apothecaries Hall Co.	+.24	+.47	+.27
Armour Fertilizer Works	−.18	+.41	+.19
Berkshire Chemical Co.	−.007	+.35	+.03
Consolidated Rendering Co.	+.07	+.25	+.33
Eastern States Farmers' Exchange	+.23	+.02	+.72
International Agricultural Corp.	−.07	+.41	+.11
Miller Chemical & Fertilizer Corp.	−.12	+.20	+.22
Old Deerfield Fertilizer Co., Inc.	+.30	+.82	+.74
Olds & Whipple, Inc.	+.14	+.65	+.67
Rogers & Hubbard Co.	+.18	+.55	+.37
Standard Wholesale Phosphate & Acid Works, Inc.	+.09	+.19	+.41
Swift & Company Fertilizer Works	+.16	+.31	+.19
Woodruff Fertilizer Works, Inc.	+.07	+.12	+.14

Summary of Data on Acid and Basic Fertilizers

Fertilizer Tonnage Tested					Extent of Acidity on Basicity of Fertilizer Sold, Expressed in Tons of Calcium Carbonate ($CaCO_3$)				
	1936	1937	1938	1939		1936	1937	1938	1939
Acid	34,746	32,957	32,790	29,019	Acidity	3,826	3,596	3,539	3,235
Basic	8,393	14,877	11,297	11,067	Basicity	571	984	815	626
Total	43,139	47,834	44,087	40,086	Net acidity*	3,255	2,612	2,724	2,609
Percentage of Tonnage Acid	80.54	68.90	74.38	72.18	Average Acidity*	151	109	124	130

* The net acidity is the total amount of calcium carbonate, expressed in tons, which would be required to neutralize all the fertilizer tested.

The average acidity is the average amount of calcium carbonate, expressed in pounds, which would have to be added to each ton of mixed fertilizer to make neutral all of the fertilizer tested.

Average Analysis of Mixed Fertilizers*

	1936		1937		1938		1939	
	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found
Nitrogen	4.96	5.18	5.05	5.29	5.14	5.31	5.21	5 30
Available phosphoric acid	8.26	8.63	8.13	8.59	8 33	8.56	8.43	8.78
Potash	6.82	7.17	6.91	7.20	7.10	7.50	7.28	7.60

* Does not include fertilizer mixed for special orders.

During the past five years, the average guarantee of the mixed fertilizers has been higher each year than the preceding year, with the exception of the average guaranteed available phosphoric acid which was slightly lower in 1937. Since 1935 the increase in guaranteed percentage of plant food has been: nitrogen .39; available phosphoric acid .39; potash .69.

Explanation of Tables of Analyses.

Guarantee. The plant food guarantee or the grade of each fertilizer is made a part of the trade name under the heading "Name of Manufacturer and Brand," and is expressed as nitrogen, available phosphoric acid, and water soluble potash and in that order.

Commercial Shortages. In the table designated "Mixtures showing a commercial shortage of $1 or more per ton," the column headed "Approximate commercial valuation per ton" gives the sum of the valuation of each plant food element computed from the analysis by use of the trade values adopted by the Massachusetts Fertilizer Control for 1939, which appear on a preceding page of the bulletin.

Under the heading "Approximate commercial shortage per ton" is shown the commercial valuation of the deficiencies or tests found below the guarantee after allowance is made for the value of overruns or tests above the guarantee.

Deficiencies are emphasized by boldface type.

Mixtures Substantially Complying with the Guarantee. In addition to the analysis of those fertilizers substantially complying with the guarantee, this table includes also those mixtures that are more or less out of balance; that is, having deficiencies in one or more plant food elements, but having overruns which largely offset the value of the deficiencies.

"Number of samples" indicates the number of samples included in the composite which was analyzed.

Inferior Nitrogen. The presence of inferior forms of organic nitrogen is indicated by footnotes.

Potash Forms. Wherever tests for chlorine showed a sufficient amount present to unite with all of the potash found, the source of the potash is designated as muriate. Wherever insufficient chlorine was found to account for all of the potash it is evident that forms of potash other than muriate were used. In such cases, the figures under the sub-heading "As muriate" do not imply necessarily that muriate of potash was actually added to the mixture, but that chlorine was present, probably from impurities in the fertilizer chemicals, in amounts to account for the percentage of potash indicated. The balance of the potash found is listed under the sub-heading "In forms other than muriate" and may be derived from sulfate, nitrate, or carbonate, as the case may be.

Mixtures Showing a Commercial Shortage of $1 or More Per Ton

Name of Manufacturer and Brand	Where Sampled	Approximate Commercial Valuation Per Ton	Approximate Commercial Shortage Per Ton	Nitrogen Found				Phosphoric Acid		Potash (K_2O) Found	
				In Ammoniacal Forms	In Nitrate Forms	In Organic Forms	Total	Available	Total	As Muriate	In Forms Other than Muriate
American Agricultural Chemical Co.											
AA 8-16-16 Fertilizer	Auburn	$44.58	$1.18	6.40	.68	.61	**7.69**	**15.05**	**15.34**	16.51	–
AA 8-16-16 Fertilizer (*a*)	Wayland	43.17	1.98	6.30	.83	.36	**7.49**	**15.65**	**15.84**	**15.10**	–
Agrico for Onions 5-10-5 (*b*)	Auburn	25.89	1.08	3.18	.33	1.14	**4.65**	10.29	10.55	4.15	–
Agrico for Seeding Down 4-16-20	Rochester	40.05	1.17	2.72	.69	.39	**3.80**	15.74	16.08	19.22	–
Agrico for Seeding Down 4-16-20	Hatchville	39.99	1.50	2.45	.73	.45	**3.63**	**15.92**	16.34	**19.02**	–
Agrico for Seeding Down 4-16-20 (*a*)	Auburn	40.62	1.07	2.49	.63	.54	**3.66**	**15.61**	16.01	**19.97**	–
Armour Fertilizer Works											
Armours Big Crop Fertilizer 4-8-7 (*c*)	So. Deerfield	23.36	1.05	2.15	.50	1.06	**3.71**	8.26	8.68	**6.05**	–
Thomas J. Grey Co.											
Grey's 9-6-6 Plant Food	Boston	28.28	1.59	6.01	.48	.80	**7.29**	6.90	**7.28**	7.12	–
International Agricultural Corp.											
International 10-6-4	Marblehead	39.14	1.15	3.32	1.76	4.41	**9.49**	6.20	6.85	4.03	–
International 10-6-4 (*d*)	Eastham	30.38	1.35	6.33	1.77	1.32	**9.42**	**5.86**	6.05	4.02	–
Old Deerfield Fertilizer Co., Inc.											
Old Deerfield 10-6-4 (*e*)	Boston	35.29	2.56	2.85	2.25	3.78	**8.88**	6.25	6.51	5.19	–
Swift & Company Fertilizer Works											
Swift's Special Golf Fertilizer 6-12-4 (*a*)	Springfield	26.69	1.27	4.96	.19	.34	5.49	**11.54**	**11.78**	3.77	.40

a One other sample substantially complied with the guarantee.
b A composite of two other samples substantially complied with the guarantee.
c A composite of three other samples substantially complied with the guarantee.
d Six other samples substantially complied with the guarantee.
e Two other samples substantially complied with the guarantee.

Mixtures Substantially Complying with Guarantees.

Number of Samples	Name of Manufacturer and Brand	Nitrogen Found				Available Phosphoric Acid Found	Potash (K_2O) Found	
		In Ammoniacal Forms	In Nitrate Forms	In Organic Forms	Total		As Muriate	In Forms Other than Muriate
	Acme Guano Co.							
1	Acme 4-6-10	3.29	.33	.69	4.31	8.07	8.12	1.53
1	Acme 4-8-4	3.53	.41	.96	4.90	6.97	2.85	2.38
2	Acme 4-8-4	3.00	–	.79	3.79	7.07	2.32	2.45
1	Acme 4-8-7	3.06	.24	.69	3.99	7.62	4.08	3.31
2	Acme 4-8-7	3.09	.14	.65	3.88	7.86	3.49	3.49
1	Acme 4-8-7	3.22	–	.77	3.99	8.40	4.44	2.86
1	Acme 4-12-4	3.16	–	.84	4.00	12.37	2.85	1.63
1	Acme 5-5-15 (Tobacco Special)	.31	.53	3.68	4.52	5.71	–	17.30
1	Acme 5-8-7	3.71	.56	.91	5.18	8.02	4.51	2.43
1	Acme 5-8-7	2.63	.62	1.54a	4.79	8.73	7.10	–
1	Acme 5-8-10	3.34	.33	1.69	5.36	8.16	8.89	1.53
1	Acme 7-3-7 (Tobacco)	.49	.33	5.78	6.60	5.32	–	9.79
1	Acme Special Mixture 8-16-14	6.57	.36	1.21	8.14	14.52	15.37	–
	Agricultural Laboratories, Inc.							
2	"Stimuplant" 11-12-15	3.27	9.08	.18	12.53	12.35	–	20.68
	American Agricultural Chemical Co.							
2	AA 0-20-20 Fertilizer	–	–	–	–	19.92	20.64	–
2	AA 4-8-8 Fertilizer	2.88	.74	.61	4.23	8.55	8.03	–
1	AA 4-8-8 Fertilizer	2.80	.43	.87	4.10	8.41	7.82	–
3	AA 4-12-4 Fertilizer	3.03	.67	.36	4.06	12.77	4.26	–

2	AA 6–8–6 Fertilizer	4.96	.16	.74	5.86	8.43	6.09	–
1	AA 6–8–6 Fertilizer	4.96	.15	.83	5.94	8.31	5.84	–
2	AA 8–16–16 Fertilizer (*b*)	6.98	.43	.55	7.96	16.20	16.03	–
2	AA Complete Manure with 10% Potash 4–8–10	3.00	.46	.71	4.17	8.19	10.86	–
7	AA Complete Manure with 10% Potash 4–8–10	2.80	.31	1.01	4.12	8.25	10.00	–
4	AA Corn Favorite 3–10–4	2.11	.43	.55	3.09	10.74	4.09	–
2	AA Corn Favorite 3–10–4	1.96	.41	.76	3.13	9.73	3.64	–
5	AA Cranberry Fertilizer 5–6–4	2.67	1.16	.78	4.61	6.74	4.21	–
3	AA Double Strength Fertilizer 8–16–14	6.92	.45	.80	8.17	16.58	13.90	–
4	AA Monarch Fertilizer 4–8–4	2.70	.43	.77	3.90	8.03	4.30	–
4	AA Monarch Fertilizer 4–8–4	2.76	.46	.81	4.03	8.27	4.24	–
4	AA Monarch Fertilizer 4–8–4	2.60	.55	.73	3.88	8.39	4.31	–
2	AA Peerless Fertilizer 4–8–7	2.91	.42	.76	4.09	7.91	7.02	–
3	AA Peerless Fertilizer 4–8–7	2.74	.41	.95	4.10	7.98	6.95	–
5	AA Potato Grower 5–8–10	3.78	.25	1.02	5.05	8.34	9.94	–
6	AA Potato & Vegetable Fertilizer 5–8–7	3.82	.50	.69	5.01	8.18	7.12	–
4	AA Potato & Vegetable Fertilizer 5–8–7	3.75	.50	.77	5.02	8.46	7.07	–
2	AA Prolific 10% Potash Fertilizer 2–8–10	1.47	.77	.28	2.52	8.28	9.70	
3	AA Tobacco Starter 5–5–15	.28	2.39	2.31	4.98	5.29	–	15.36
2	AA Top Dresser 7–6–6	5.07	.80	.55	6.42	6.39	5.81	–
4	AA Top Dresser 7–6–6	4.93	.57	.72	6.22	6.52	7.24	–
2	AA Top Dresser 7–6–6	5.11	.46	1.28	6.88	6.43	6.14	–
4	AA Top Dresser 7–7–7	5.75	.81	.47	7.03	7.65	7.07	–
4	AA Top Dresser 7–7–7	5.03	.57	1.12	6.72	7.29	6.72	–
4	Agrico for Aroostook with 10% Potash 5–8–10	4.00	.65	.58	5.23	8.46	10.55	–
7	Agrico for Aroostook with 10% Potash 5–8–10	3.86	.82	.46	5.14	8.05	9.80	–
4	Agrico for Corn 3–10–6	1.97	.23	.91	3.11	10.05	6.04	–
7	Agrico for Corn 3–10–6	2.01	.62	.47	3.10	9.90	6.04	–
2	Agrico for Corn 4–12–6	3.00	.23	.85	4.08	12.50	6.14	–
5	Agrico for Corn 4–12–6	2.89	.49	.70	4.08	11.91	5.88	–

a The water insoluble nitrogen was of inferior quality.
b Two other samples were deficient: see analyses in table of "Mixtures showing a commercial shortage of $1 or more per ton."

Mixtures Substantially Complying with Guarantees — Continued.

Number of Samples	Name of Manufacturer and Brand	Nitrogen Found				Available Phosphoric Acid Found	Potash (K_2O) Found	
		In Ammoniacal Forms	In Nitrate Forms	In Organic Forms	Total		As Muriate	In Forms Other than Muriate
	American Agricultural Chemical Co.—Concluded							
1	Agrico Country Club Fertilizer 6-8-2	3.12	–	2.86	5.98	8.58	2.08	–
6	Agrico Country Club Fertilizer 8-6-2	3.31	.78	3.45	7.54	6.38	1.50	.70
3	Agrico Country Club Fertilizer 8-6-4	6.43	.48	1.02	7.93	6.35	4.04	–
4	Agrico for Fruit 8-8-4	5.82	1.31	.66	7.79	8.10	3.99	–
2	Agrico for Gardens 4-10-4	3.55	–	1.19	4.74	9.80	3.96	–
6	Agrico for Lawns, Trees and Shrubs 7-7-5	4.44	.75	1.53	6.72	7.80	4.99	–
5	Agrico for New England 4-8-10	2.88	.44	.67	3.99	8.26	10.12	–
7	Agrico for New England 4-8-10	2.80	.70	.59	4.09	8.51	9.80	–
2	Agrico for Onions 5-10-5 (*c*)	3.47	.76	.77	5.00	10.36	5.28	–
4	Agrico for Potatoes & Vegetables 5-8-7	3.69	.38	.81	4.88	8.19	7.23	–
8	Agrico for Potatoes & Vegetables 5-8-7	3.80	.56	.60	4.96	8.07	6.92	–
3	Agrico for Potatoes—Double Strength 8-16-14	5.49	.57	1.66	7.72	15.53	14.26	–
5	Agrico for Potatoes—Double Strength 8-16-20	6.75	.55	.43	7.73	15.97	20.12	–
2	Agrico for Potatoes—Double Strength 8-16-20	6.67	.74	.36	7.77	15.96	20.42	–
1	Agrico for Seeding Down 4-16-20 (*d*)	3.12	.77	.07	3.96	15.57	19.61	–
5	Agrico for Tobacco 6-3-6	.18	.50	5.30	5.98	3.84	–	6.53
1	Agrico for Tobacco 6-3-6	.29	.79	5.60	6.68	3.63	–	6.62
1	Agrico for Top Dressing 7-6-6	5.20	1.01	.54	6.75	6.86	5.86	–
4	Agrico for Top Dressing 7-7-7	5.71	.52	.62	6.85	7.62	6.87	–
4	Agrico for Top Dressing 7-7-7	5.49	.79	.50	6.78	7.16	6.76	–
2	Agrico for Top Dressing 7-7-7	5.38	.84	.40	6.62	7.62	7.31	–

4	Bowker's All Round Fertilizer 3-10-4	1.98	.54	.60	3.12	10.31	4.45	-
3	Bowker's Market Garden Fertilizer 4-8-4	2.74	.46	.74	3.94	8.26	4.32	-
4	Bowker's Market Garden Fertilizer 4-8-4	2.72	.58	.67	3.97	7.89	4.22	-
5	Bowker's Stockbridge Early Crop Manure 5-8-7	3.65	.70	.67	5.02	8.04	7.31	-
7	Bowker's Stockbridge Potato & Vegetable Manure 4-8-10	2.80	.62	.75	4.17	8.11	10.30	-
3	Bradley's Blood, Bone & Potash Brand 5-8-7	3.84	.43	.73	5.00	8.12	7.28	-
4	Bradley's Blood, Bone & Potash Brand 5-8-7	3.85	.76	.52	5.13	8.09	7.15	-
1	Bradley's Complete Manure for Potatoes & Vegetables 4-8-7	2.65	.74	.64	4.03	8.14	6.97	-
3	Bradley's Complete Manure with 10% Potash 4-8-10	2.98	.61	.52	4.11	8.42	10.30	-
2	Bradley's Northland Fertilizer 4-8-4	2.57	.61	.87	4.05	8.02	4.45	-
3	Bradley's Northland Fertilizer 4-8-4	2.87	.57	.63	4.07	8.36	4.16	-
2	Bradley's XL Fertilizer 3-10-4	2.24	.28	.73	3.25	10.00	4.31	-
5	Bradley's XL Fertilizer 3-10-4	1.84	.82	.46	3.12	9.87	3.91	-
2	Co-Op 5-8-7 Fertilizer	3.65	.52	.85	5.02	8.29	7.24	-
2	Co-Op 7-6-6 Fertilizer	5.30	.75	.48	6.53	6.31	6.04	-
1	Double A Tobacco Fertilizer 5-3-5	.65	.87	3.14	4.66	3.22	1.67	3.19
2	National Pine Tree Brand 4-8-4	3.11	.63	.58	4.32	7.86	5.53	-
1	Sanderson's Formula A 4-8-4	2.88	.72	.41	4.01	8.30	4.40	-
1	Sanderson's Formula B 4-8-7	2.57	.32	1.05	3.94	8.29	-	7.28
	Apothecaries Hall Co.							
1	Liberty 7-6-6	1.95	4.37	.95	7.27	6.27	5.38	1.28
1	Liberty 8-16-14	.53	-	7.83	8.36	16.36	14.67	-
1	Liberty 8-16-16	.41	.15	7.57	8.13	16.24	16.31	-
1	Liberty Corn Fertilizer 3-12-6	1.42	.63	1.17	3.22	12.68	6.47	-
1	Liberty Fish-Bone-Potash 3-10-4	1.15	1.03	1.03	3.21	10.55	4.71	-
1	Liberty Green Gro 6-5-3	1.60	.66	3.97	6.23	5.56	-	4.66

c One other sample was deficient: see analysis in table of "Mixtures showing a commercial shortage of $1 or more per ton."
d Three other samples were deficient: see analyses in table of "Mixtures showing a commercial shortage of $1 or more per ton."

Mixtures Substantially Complying with Guarantees — Continued.

Number of Samples	Name of Manufacturer and Brand	Nitrogen Found				Available Phosphoric Acid Found	Potash (K_2O) Found	
		In Ammoniacal Forms	In Nitrate Forms	In Organic Forms	Total		As Muriate	In Forms Other than Muriate
	Apothecaries Hall Co.—Concluded							
1	Liberty High Analysis Potato & General Crops 8-16-20	.43	.15	7.42	8.00	16.36	20.04	–
1	Liberty High Grade Corn 4-12-4	1.42	1.53	1.32	4.27	12.10	4.03	–
1	Liberty High Grade Fertilizer for Fruit 10-5-5	1.44	8.31	.91	10.66	5.26	1.65	3.44
3	Liberty High Grade Market Gardeners 5-8-7	3.62	.48	1.25	5.35	8.43	7.23	–
5	Liberty High Grade Market Gardeners 5-8-7	3.55	.79	.93	5.27	8.45	7.10	–
4	Liberty Market Gardeners Special 4-8-4	3.00	.45	.94	4.39	8.36	4.33	–
2	Liberty Market Gardeners Special 4-8-4	2.87	.36	.84	4.07	8.31	4.20	–
4	Liberty Potato & General Crops 4-8-10	2.44	.69	.97	4.10	8.08	10.07	–
1	Liberty Potato & Market Gardeners (Potash as Muriate) 4-8-7	2.73	.63	.73	4.09	8.30	7.14	–
3	Liberty Special Fertilizer for Fruit & Grass 7-7-7	2.54	4.10	.52	7.16	7.26	4.87	2.34
1	Liberty Special Fertilizer for Lawns, Gardens, Flowers, Shrubs & Trees 4-4-0	.03	.34	4.26	4.63	5.08	–	–
1	Liberty 6-3-6 Tobacco Fertilizer with Cotton Hull Ashes	.27	.24	5.47	5.98	4.61	–	7.10
1	Liberty Tobacco Special 5-3-5	.06	1.24	3.77	5.07	4.74	–	6.48
1	Liberty Tobacco Starter with Potash 5-5-15	.09	1.80	3.16	5.05	6.05	–	16.18
3	Liberty Top Dresser for Grass & Grain 8-8-8	4.31	2.82	.87	8.00	8.70	7.46	–
1	Liberty Tree & Shrub Food 10-8-8	1.73	7.93	.92	10.58	7.53	9.07	–
	Armour Fertilizer Works							
1	Armours Big Crop Fertilizer 3-10-4	2.20	.50	.44	3.14	10.56	4.43	–

3	Armours Big Crop Fertilizer 3-12-6	2.00	.38	.65	3.03	11.85	5.91	–
2	Armours Big Crop Fertilizer 3-12-6	2.15	.26	.65	3.06	12.12	5.38	–
6	Armours Big Crop Fertilizer 4-8-4	2.66	.56	.69	3.91	8.33	4.45	–
1	Armours Big Crop Fertilizer 4-8-4	2.38	.49	1.06	3.93	8.65	4.35	–
3	Armours Big Crop Fertilizer 4-8-7 (c)	2.60	.49	.93	4.02	8.26	7.17	–
3	Armours Big Crop Fertilizer 4-8-10	2.63	.53	.85	4.01	8.03	10.10	–
5	Armours Big Crop Fertilizer 4-8-10	2.41	.79	.64	3.84	8.39	9.95	–
2	Armours Big Crop Fertilizer 4-16-4	3.28	.47	.34	4.09	16.33	4.02	–
1	Armours Big Crop Tobacco Special 5-3-5	2.03	.40	2.68	5.11	3.78	1.51	4.17
2	Armours Big Crop Tobacco Starter 5-5-15	.94	1.72	2.32	4.98	5.59	2.98	12.55
4	Armours Big Crop Fertilizer 5-8-7	3.32	.27	1.20	4.79	7.98	6.35	.47
6	Armours Big Crop Fertilizer 5-8-7	3.27	.64	.96	4.87	8.22	6.92	–
1	Armours Big Crop Fertilizer 5-8-10	3.40	.58	.93	4.91	8.06	10.03	–
4	Armours Big Crop Fertilizer 5-10-5	3.77	.37	.81	4.95	10.41	4.96	.22
2	Armours Big Crop Fertilizer 5-10-5	3.76	.43	.91	5.10	10.23	5.02	–
3	Armours Big Crop Fertilizer 5-10-10	3.43	.62	.75	4.80	10.60	9.94	–
1	Armours Big Crop Fertilizer 5-15-5	3.64	.75	.61	5.00	15.06	–	4.70
1	Armours Big Crop Tobacco Special 6-3-6	.25	.91	4.30	5.46	3.74	1.50	5.35
1	Armours Big Crop Tobacco Special 6-3-7	.10	1.26	4.91	6.27	3.25	–	7.81
1	Armours Big Crop Fertilizer 6-12-6	4.28	.50	1.19	5.97	12.46	5.95	–
2	Armours Big Crop Fertilizer 7-6-6	4.86	.96	.72	6.54	7.11	7.24	–
7	Armours Big Crop Fertilizer 7-7-7	4.97	.83	.85	6.65	8.02	7.50	–
1	Armours Big Crop Orchard & Grape Fertilizer 7-7-7	4.13	2.02	.47	6.62	8.48	5.50	1.50
3	Armours Big Crop Fertilizer 8-16-20	6.59	.80	.46	7.85	16.49	20.23	–
5	Armours Fertilizer 4-8-8	2.42	.53	1.01	3.96	8.03	7.69	–
1	Armours Fertilizer 4-12-4	2.97	.08	.96	4.01	11.38	3.99	–

c One other sample was deficient: see analysis in table of "Mixtures showing a commercial shortage of $1 or more per ton."

Mixtures Substantially Complying with Guarantees — Continued

Number of Samples	Name of Manufacturer and Brand	Nitrogen Found				Available Phosphoric Acid Found	Potash (K_2O) Found	
		In Ammoniacal Forms	In Nitrate Forms	In Organic Forms	Total		As Muriate	In Forms Other than Muriate
	Armour Fertilizer Works—Concluded							
3	Armours Fertilizer 8–16–16	6.81	.48	.64	7.93	16.07	16.15	–
4	Armours Fertilizer 8–16–16	6.58	.77	.48	7.83	16.45	15.60	–
1	Armours Garden & Lawn Fertilizer 4–8–6 (old stock)	2.27	.61	.80	3.68	8.60	7.16	–
2	Armours Garden & Lawn Fertilizer 4–8–8	2.53	.60	.77	3.90	8.59	7.17	–
3	Armours Special Putting Green Mixture 8–5–2	3.70	1.19	3.06	7.95	5.87	2.90	–
1	Armours Special Putting Green Mixture 8–5–2	2.45	.68	4.19	7.32	5.78	2.91	–
1	Armours Special Tree Food Mixture 10–8–6	8.69	.84	.63	10.16	8.17	3.79	2.27
	Ernest J. Bantle							
3	Bantle's Special Tobacco Fertilizer 6–3–7	.10	1.45	4.60	6.15	4.65	–	9.08
	F. A. Bartlett Tree Expert Co.							
1	Bartlett Green Tree Food 6–7–4	5.53	.06	1.11	6.70	6.93	4.83	–
	Belmont Gardens							
1	Gardenia Fertilizer (Belgard) 6–15–4	5.06	.04	1.07	6.17	15.06	–	5.35
	Berkshire Chemical Co.							
3	Berkshire Fertilizer 4–8–4	3.08	.04	.92	4.04	8.55	4.21	.16
2	Berkshire Fertilizer 4–8–4	3.44	.32	.36	4.12	8.20	4.17	–
4	Berkshire Fertilizer 4–8–7	2.84	.03	1.18	4.05	8.23	6.74	–
1	Berkshire Fertilizer 4–8–7	2.99	.33	.80	4.12	8.21	6.95	–
1	Berkshire Fertilizer 4–8–10	2.64	.34	1.06	4.04	8.24	10.11	–
2	Berkshire Fertilizer 4–10–4	2.62	.08	1.32	4.02	10.63	4.12	–

1	Berkshire Fertilizer 4-12-4	2.58	.36	1.12	4.06	12.34	3.82	–
3	Berkshire Fertilizer 5-5-15	.09	2.38	2.55	5.02	5.58	–	15.43
5	Berkshire Fertilizer 5-8-7	3.88	.03	1.09	5.00	8.22	6.70	–
3	Berkshire Fertilizer 5-8-7	3.81	.26	.87	4.94	8.23	1.51	5.36
2	Berkshire Fertilizer 5-8-10	3.43	.24	1.26	4.93	8.22	10.16	–
1	Berkshire Fertilizer 5-8-10	3.70	.27	1.27	5.24	8.28	9.94	–
1	Berkshire Fertilizer 5-10-5	3.65	.21	1.49	5.35	9.98	5.53	–
3	Berkshire Fertilizer 6-3-6	.22	.49	4.97	5.68	3.70	–	6.69
2	Berkshire Fertilizer 6-6-5	4.57	.36	1.38	6.31	6.29	4.88	–
1	Berkshire Fertilizer 7-6-6	4.17	.48	1.53	6.18	6.31	–	6.96
1	Berkshire Golf Green Fertilizer 8-5-2	2.14	.69	5.03	7.86	6.90	2.51	–
	Joseph Breck & Sons							
2	Breck's Home Garden Fertilizer 5-10-10	1.34	1.31	2.38	5.03	10.12	10.67	–
2	Brexone 5-10-4	1.89	1.44	1.70	5.03	10.37	4.17	–
1	Brexone Bulb Food 5-8-5	3.05	1.40	.75	5.20	8.49	–	5.72
1	Brexone Rose Food 4-12-4	1.40	1.51	1.17	4.08	12.72	4.66	–
	C & R Sales Co.							
1	Re-Vitalizer 10-5-5	5.03	.08	4.15	9.26	5.81	2.54	3.41
	Clay & Son, Ltd.							
2	Clay's Fertilizer 5-9-2	2.64	–	3.13	5.77	10.15	–	2.49
1	Clay's Fertilizer 5-9-2	2.25	.12	2.88	5.25	9.38	–	2.37
1	Clay's Fertilizer 5-9-2 (1937 stock)	2.27	.24	3.30	5.81	9.96	–	2.57
	Collins Seed Service Co.							
2	Casta-Poma Grass Manure 5-6-2	2.22	.20	2.59	5.01	6.25	2.32	–
1	Complete Grass Manure 6-8-2	2.65	.97	2.33	5.95	8.23	1.46	1.09
1	Complete Grass Manure 6-8-2 (old stock)	2.48	1.00	2.34	5.82	8.06	2.55	–
1	General Purpose Manure 4-8-4	2.28	.58	1.07	3.93	8.61	4.25	–
2	Ver-Best P. G. Manure 7-8-3	3.20	.88	2.71	6.79	8.20	1.26	2.23

Mixtures Substantially Complying with Guarantees — Continued

Number of Samples	Name of Manufacturer and Brand	Nitrogen Found				Available Phosphoric Acid Found	Potash (K_2O) Found		Magnesium Oxide	
		In Ammoniacal Forms	In Nitrate Forms	In Organic Forms	Total		As Muriate	In Forms Other than Muriate	Found	Guaranteed
	Consolidated Rendering Co.									
2	Competitive Brand 4-8-8	3.38	.35	.17	3.90	8.75	7.87	–	–	–
2	Competitive Brand 8-16-16	6.36	.79	.65	7.80	16.56	16.10	–	–	–
4	Corenco 3-10-4 Animal Brand	1.08	.98	.99	3.05	9.92	4.18	–	–	–
6	Corenco 4-8-4 Corn & Vegetable	2.13	1.10	.87	4.10	8.20	4.38	–	–	–
4	Corenco 4-8-4 Corn & Vegetable	2.05	1.10	.84	3.99	7.78	4.29	–	–	–
3	Corenco 4-8-7 Market Garden	2.02	1.09	.97	4.08	8.01	7.01	–	–	–
2	Corenco 4-8-7 Market Garden	2.08	1.13	.92	4.13	8.13	7.20	–	–	–
5	Corenco 4-8-10 Potato Grower	1.88	.74	1.44	4.06	8.07	10.30	–	–	–
5	Corenco 4-8-10 Potato Grower	2.07	1.29	1.09	4.45	8.16	10.94	–	–	–
3	Corenco 4-12-4 Complete Manure	2.21	1.09	.81	4.11	12.09	4.37	–	–	–
2	Corenco 5-5-5 Lawn & Shrub	1.61	.90	2.69	5.20	5.73	5.57	–	–	–
1	Corenco 5-5-15 Tobacco Starter	.32	1.31	3.68	5.31	6.79	–	16.28	–	–
5	Corenco 5-8-7 General Crop Manure	3.02	.83	1.23	5.08	8.37	7.40	–	–	–
6	Corenco 5-8-7 General Crop Manure	2.99	.99	.97	4.95	8.24	6.64	–	–	–
2	Corenco 5-8-7 Made with Water Soluble Magnesium	2.82	1.02	.87	4.71	8.33	6.47	–	.95	1.00
4	Corenco 5-8-10 Peerless Potato	3.08	1.15	.79	5.02	8.07	10.63	–	–	–
3	Corenco 5-8-10 Peerless Potato	3.06	1.16	.91	5.13	8.32	10.28	–	–	–
2	Corenco 5-8-10 Made with Water Soluble Magnesium	3.00	.93	1.01	4.94	8.58	9.74	–	1.05	1.00
1	Corenco 5-9-8	3.06	1.15	.90	5.11	9.44	8.22	–	–	–

3	Corenco 5-10-5 Super Truck	2.94	1.06	1.20	5.20	10.08	5.10	-	-	-
2	Corenco 6-3-6 Special Tobacco Grower	.24	1.29	4.96	6.49	3.40	-	6.74	-	-
2	Corenco 6-3-6 Special Tobacco Grower	.34	.91	4.74	5.99	4.35	-	7.00	-	-
5	Corenco 7-6-6 Complete Fruit & Top Dressing	4.97	1.13	.96	7.06	6.36	6.23	-	-	-
6	Corenco 7-6-6 Complete Fruit & Top Dressing	5.20	1.09	.86	7.15	6.50	6.65	-	-	-
1	Corenco 8-6-4 Top Dressing	5.93	1.02	1.11	8.16	6.18	4.50	-	-	-
4	Corenco 8-16-14 Two in One	5.95	.82	1.28	8.05	16.21	13.91	-	-	-
2	Corenco 8-16-14 Two in One	5.98	1.22	.91	8.11	16.09	14.08	-	-	-
1	Corenco 10-2-2 Special Fertilizer	9.29	.15	.17	9.61	2.37	2.21	-	-	-
1	Corenco 10-6-4	3.97	.36	5.53	9.86	7.75	4.04	-	-	-
1	5-8-4 Gracol Garden	.85	.84	3.93	5.62	9.03	4.90	-	-	-
2	New England 8-6-2 Putting Green Special	5.66	.09	2.55	8.30	6.61	2.66	-	-	-
3	New England 8-6-2 Putting Green Special	5.12	.19	2.75	8.06	7.11	2.92	-	-	-
	Davey Tree Expert Co.									
2	Davey Tree Food 10-3-3	6.07	1.42	2.22	9.71	3.62	2.89	-	-	-
	Davison Chemical Corporation									
1	Davco Granulated Fertilizer 5-8-7	4.41	.03	.24	4.68	8.08	7.03	-	-	-
1	Davco Granulated Fertilizer 6-6-5	5.64	.02	.09	5.75	6.12	4.86	-	-	-
	Dehydrating Process Co.									
1	Fish Organo 4-4-1	-	-	4.37	4.37	3.89	-	1.46	-	-
	Eastern States Farmers' Exchange									
3	Eastern States 0-20-20	-	-	-	-	20.51	20.64	-	-	-
3	Eastern States 0-20-20	-	-	-	-	20.01	21.84	-	-	-
5	Eastern States 4-8-8	2.99	.92	.40	4.31	8.41	8.83	-	5.52	4.00
4	Eastern States 4-8-8	2.52	1.05	.59	4.16	8.50	8.16	-	5.54	4.00

Mixtures Substantially Complying with Guarantees — Continued

Number of Samples	Name of Manufacturer and Brand	Nitrogen Found				Available Phosphoric Acid Found	Potash (K_2O) Found		Magnesium Oxide	
		In Ammoniacal Forms	In Nitrate Forms	In Organic Forms	Total		As Muriate	In Forms Other than Muriate	Found	Guaranteed
	Eastern States Farmers' Exchange—Con.									
5	Eastern States 4–12–4	2.61	.02	1.65	4.28	12.27	4.81	–	3.28	2.00
3	Eastern States 4–12–4	3.00	.14	1.13	4.27	12.23	4.60	–	2.42	2.00
5	Eastern States 4–16–20	3.15	.73	.49	4.37	15.84	21.33	–	2.54	1.60
2	Eastern States 4–16–20	2.96	1.25	.37	4.58	15.34	21.66	–	2.28	1.60
2	Eastern States 5–5–15 Tobacco	.04	2.22	3.08	5.34	6.02	–	16.84	3.68	2.70
2	Eastern States 6–3–6 Cranberry	.41	5.45	.55	6.41	11.27	2.67	3.95	–	–
4	Eastern States 6–8–6	4.06	1.74	.59	6.39	8.76	6.41	–	3.70	3.00
3	Eastern States 6–8–6	3.93	1.95	.42	6.30	8.26	6.50	–	3.45	3.00
5	Eastern States 7–14–19	5.23	1.93	.27	7.43	13.85	19.40	–	2.84	2.00
2	Eastern States 7–14–19	5.08	1.87	.27	7.22	14.14	19.67	–	2.47	2.00
2	Eastern States 8–4–8 Tobacco	.62	.62	6.75	7.99	4.09	–	8.28	2.64	2.00
6	Eastern States 8–16–16	6.09	2.10	.14	8.24	15.62	16.59	–	2.98	2.00
5	Eastern States 8–16–16	5.91	2.10	.30	8.31	15.16	17.10	–	2.15	2.00
1	Eastern States 8–16–16 B	5.49	.05	2.27	7.81	17.55	15.15	–	2.45	2.00
2	Eastern States 8–16–16 Low Chlorine Special	5.36	1.96	.59	7.91	15.83	6.79	9.44	2.51	1.60
5	Eastern States 8–20–12	5.72	2.04	.33	8.09	19.87	12.38	–	2.36	2.00
2	Eastern States 8–20–12	5.67	2.22	.35	8.24	20.03	1.90	11.12	2.33	2.00
7	Eastern States 8–24–8	6.12	.20	1.75	8.07	23.52	9.17	–	1.60	1.40
2	Eastern States 8–24–8	6.25	.28	1.74	8.27	23.93	8.40	–	2.04	1.40
5	Eastern States 10–6–4	6.52	3.05	.42	9.99	6.78	4.52	–	4.13	3.00
1	Eastern States 10–6–4	6.21	3.34	.46	10.01	6.85	4.39	–	3.84	3.00
1	Eastern States 10–6–4	6.46	3.20	.44	10.10	7.27	3.82	.44	3.57	3.00
5	Eastern States 12–16–12	7.41	3.29	1.27	11.97	16.10	7.88	4.68	1.75	1.60

	Ellis Laboratories, Inc.									
1	"Plantet" 8–6–10	1.33	6.05	.01	7.39	6.23	11.88	–	–	–
	Thomas W. Emerson Co.									
3	English Formula Lawn & Garden Dressing 5–7–3	2.91	.19	2.16	5.26	9.53	3.19	–	–	–
1	English Formula Lawn & Garden Dressing 5–7–3 (old stock)	3.33	.06	1.83	5.22	9.67	3.15	–	–	–
	Excell Laboratories									
2	"New Plant Life" 2–2–2	1.30	1.45	.07	2.82	1.66	–	2.73	–	–
1	"New Plant Life" 1–1–1 (old stock)	.75	1.14	.12	2.01	1.14	–	1.55	–	–
	Fertilizer Sales Corporation									
1	Organo 4–8–8	2.12	.71	2.46	5.29	8.49	3.57	5.59	–	–
1	Organo 4–12–4	2.56	.53	2.36	5.45	12.80	4.51	–	–	–
2	Organo 5–8–7	2.18	.95	3.02	6.15	9.18	7.36	–	–	–
1	Organo 8–6–2	1.31	1.19	6.89	9.39	7.26	–	2.54	–	–
	H. L. Frost & Higgins Co.									
1	Frost's Lawn & Shrubbery Special 8–6–3	1.88	.20	5.93	8.01	7.35	–	3.87	–	–
1	Frost's Shade Tree Special 8–6–6	4.46	1.71	1.89	8.06	6.99	6.29	–	–	–
	Garden Hose Spray Co., Inc.									
1	Arnold Balanced Fertilizer Cartridge 10–18–12	.10	10.40	.03	10.53	18.24	–	11.97	–	–
	Goulard & Olena, Inc.									
2	G & O Lawn-Garden & Flower Fertilizer 5–8–5	3.50	.37	.88	4.75	8.98	5.52	–	–	–
1	G & O Plant Food 11–15–20	9.99	–	2.01	12.00	14.97	19.89	–	–	–
1	Sears Lawn & Garden Grower 5–8–7	4.25	.12	.48	4.85	9.02	7.45	–	–	–
	Hartney-Amalia, Inc.									
1	Hartney-Amalia Vitafood 7–7–6	4.03	1.36	1.71	7.10	10.84	6.86	–	–	–

Mixtures Substantially Complying with Guarantees — Continued

Number of Samples	Name of Manufacturer and Brand	Nitrogen Found				Available Phosphoric Acid Found	Potash (K_2O) Found		Magnesium Oxide	
		In Ammoniacal Forms	In Nitrate Forms	In Organic Forms	Total		As Muriate	In Forms Other than Muriate	Found	Guaranteed
	Allen Hersom Co.									
2	Neverfail 4-8-4	2.05	1.19	.84	4.08	8.35	3.69	.46	–	–
3	Neverfail 5-8-7	2.85	1.10	1.12	5.07	7.66	7.64	–	–	–
	Gerald S. Higgins									
1	Woodward's Wonder Farmer 9-6-20 (*e*)	5.63	3.56	–	9.19	10.18	–	14.13	–	–
1	Woodward's Wonder Farmer 9-6-20 (*e*)	4.27	3.64	–	7.91	9.86	–	16.85	–	–
	A. H. Hoffman, Inc.									
3	Hoffman's Plant Food 5-8-6	1.98	1.51	1.61	5.10	11.32	6.23	–	–	–
	Independent Manufacturing Co.									
1	Smith's Mum Manure 5-6-5	2.17	1.03	2.63	5.83	10.41	3.96	2.88	–	–
	International Agricultural Corporation									
3	International 3-10-4	1.65	.81	.75	3.21	10.72	3.97	–	–	–
6	International 4-8-4	2.37	.47	1.10	3.94	8.43	3.26	.77	–	–
4	International 4-8-4	2.45	.84	.71	4.00	8.22	4.36	–	–	–
2	International 4-8-7	2.91	.58	.55	4.04	8.22	7.15	–	–	–
4	International 4-8-8	2.93	.64	.49	4.06	8.32	8.09	–	–	–
3	International 4-8-10	2.48	.73	.74	3.95	8.19	9.30	.81	–	–
5	International 4-8-10	2.46	.74	.73	3.93	8.34	4.98	5.16	–	–
1	International 4-12-4	2.76	.37	.88	4.01	12.45	4.69	–	–	–

5	International 5-8-7	3.18	.40	1.32	4.90	8.76	6.70	.45	–	–
4	International 5-8-7	3.36	1.07	.42	4.85	8.32	3.61	3.30	–	–
1	International 5-8-7 (Special Organic)	2.30	.42	1.97	4.69	8.95	7.65	–	–	–
2	International 5-8-10	3.31	.59	1.03	4.93	8.10	10.84	–	–	–
3	International Fertilizer 6-8-6	4.46	.77	.80	6.03	8.22	–	6.02	–	–
3	International 6-12-12 Fertilizer with 2% MgO	2.98	2.08	.99	6.05	11.73	12.09	–	2.04	2.00
5	International 7-6-6	5.03	.86	1.06	6.95	6.70	1.19	4.91	–	–
1	International 8-16-14-2	6.48	.78	.73	7.99	15.95	13.82	–	2.23	2.00
3	International 8-16-16-2	6.63	.72	.66	8.01	16.27	15.83	–	2.44	2.00
1	International 8-16-16-2	6.68	.98	.28	7.94	16.27	15.86	–	2.11	2.00
6	International 8-16-16-2	6.38	.80	.62	7.80	16.38	16.01	–	2.11	2.00
1	International 8-24-8	6.79	.85	.54	8.18	24.12	8.80	–	–	–
2	International 10-6-4	6.60	.60	2.61	9.81	6.37	4.68	–	–	–
1	International 10-6-4	4.15	2.09	4.26	10.50	6.41	3.55	1.94	–	–
1	International 10-6-4	3.83	1.38	4.79	10.00	7.34	4.15	–	–	–
1	International 10-6-4	3.80	1.53	4.17	9.50	7.61	4.00	–	–	–
1	International 10-6-4	6.53	1.46	1.15	9.14	6.46	4.78	–	–	–
1	International 10-6-4 (*b*)	3.58	1.49	4.44	9.51	6.48	3.82	–	–	–
1	International 12-16-12 Fertilizer	11.13	.94	.20	12.27	16.37	11.29	–	–	–
6	International Caribee Market Garden 5-10-10-2	1.62	1.48	1.98	5.08	10.00	3.37	6.87	1.92	2.00
5	International Caribee Green & Fairway 7-5-3-2	1.72	2.68	2.52	6.92	5.17	–	3.66	2.42	2.00
4	International Caribee Green & Fairway 7-5-3-2	1.75	2.38	2.55	6.68	5.31	2.23	1.29	2.27	2.00
2	International Caribee 7-12-10-2	2.31	1.14	3.38	6.83	12.45	3.70	6.70	2.45	2.00
3	International Growers Cranberry Fertilizer 6-6-5	.13	5.50	.44	6.07	6.80	3.43	1.59	–	–
	Kem Plant Food Corporation									
1	Kem Liquid Plant Food .07-.14-.10	–*c*	–*c*	–*c*	.08	.16	.09	–	–	–

e Withdrawn from market in Massachusetts on Sept. 30, 1939.
b Two other samples were deficient: see analyses in table of "Mixtures showing a commercial shortage of $1 or more per ton."
c Not determined

Mixtures Substantially Complying with Guarantees — Continued

Number of Samples	Name of Manufacturer and Brand	Nitrogen Found				Available Phosphoric Acid Found	Potash (K_2O) Found		Magnesium Oxide	
		In Ammoniacal Forms	In Nitrate Forms	In Organic Forms	Total		As Muriate	In Forms Other than Muriate	Found	Guaranteed
	Gerald E. A. Leitch									
1	Fertabs (Pills for Plants) 13-16-11	13.46	–	.04	13.50	17.39	–	10.79	–	–
1	Fertabs (Pills for Plants) 13-16-11	13.19	.13	.17	13.49	17.26	–	10.93	–	–
	McClain Brothers Co.									
1	Veg-E-Tonic 21-13-10	11.73	.57	8.83	21.13	14.64	12.73	–	–	–
	Mechling Bros. Division of General Chemical Co.									
2	Veget-Aid 5-10-4	4.14	.69	.75	5.58	11.03	2.22	3.08	–	–
	Miller Chemical & Fertilizer Corporation									
1	Rich Yield 4-8-4	3.20	–	.73	3.93	8.07	4.11	–	–	–
3	Rich Yield 4-8-4	3.08	.12	.80	4.00	8.20	4.54	–	–	–
2	Rich Yield 4-8-4	3.21	.15	.57*a*	3.93	8.39	1.39	2.72	–	–
1	Rich Yield 4-8-7	3.27	–	.75	4.02	8.19	6.99	–	–	–
1	Rich Yield 4-8-7	3.41	.11	.52	4.04	8.10	6.76	–	–	–
1	Rich Yield 4-8-10	3.55	–	.64	4.19	8.17	4.43	4.44	–	–
1	Rich Yield 4-8-10	3.42	.03	.57	4.02	8.47	4.42	5.50	–	–
1	Rich Yield 5-8-7	4.32	.14	.73	5.19	7.92	6.87	–	–	–
2	Rich Yield 5-8-7	3.99	–	.84	4.83	8.46	7.15	–	–	–
2	Rich Yield 5-8-7	3.91	.19	.55*a*	4.65	7.92	7.56	–	–	–
1	Rich Yield 5-8-10 (1938 stock)	4.32	.18	.57	5.07	8.34	9.30	–	–	–
2	Rich Yield 5-10-10	3.99	–	.70	4.69	9.21	11.37	–	–	–
1	Rich Yield Fertilizer 6-8-2	4.27	.18	1.65	6.10	8.14	2.97	–	–	–

2	Rich Yield 7-6-6	5.49	.19	.91*a*	6.59	7.03	6.34	–	–	–
3	Rich Yield 7-6-6	6.09	.18	.51*a*	6.78	6.27	6.33	–	–	–
	New England Toro Co.									
3	Netco Greens Formula 8-6-2	5.91	–	2.34	8.25	6.42	2.20	–	–	–
2	Netco Greens Formula 8-6-2	4.34	.18	2.93	7.45	6.54	1.58	.75	–	–
	Old Deerfield Fertilizer Co., Inc.									
2	Old Deerfield 3-12-6 Corn & Seeding	1.64	.62	.83	3.09	12.37	6.09	–	–	–
3	Old Deerfield 4-8-7 Potato & Market Garden	1.61	.67	2.18	4.46	8.89	4.88	2.85	–	–
1	Old Deerfield 4-8-7 Potato & Market Garden	1.95	.89	1.32	4.16	8.52	7.40	–	–	–
1	Old Deerfield 4-8-7 Potash other than Muriate	1.62	.41	2.28	4.31	8.55	–	7.85	2.68	2.00
2	Old Deerfield 4-8-10 High Potash	1.26	.48	2.25	3.99	9.37	8.19	3.18	–	–
2	Old Deerfield 5-3-5 Complete Tobacco	.07	1.35	3.98	5.40	3.69	–	6.13	–	–
1	Old Deerfield 5-3-5 Complete Tobacco	–	1.34	4.04	5.38	4.40	–	5.91	–	–
2	Old Deerfield 5-5-5 Lawnshrub	1.63	.48	3.59	5.70	6.37	5.41	.84	–	–
1	Old Deerfield 5-5-5 Lawnshrub	1.76	.29	3.33	5.38	6.26	–	5.91	–	–
2	Old Deerfield 5-5-15 Tobacco Starter Bone & Potash	.35	1.55	3.47	5.37	6.78	–	16.25		–
2	Old Deerfield 5-8-7 Onion & Truck	1.67	.87	2.70	5.24	9.15	7.59	–	–	–
3	Old Deerfield 5-8-7 Set Onion & Potato, Potash other than Muriate	1.51	1.33	2.54	5.38	9.37	1.63	6.00	–	–
1	Old Deerfield 5-8-12 Starter Bone & Potash (old stock)	.32	1.20	3.82	5.34	8.88	–	12.65	–	–
2	Old Deerfield 5-10-5 Truckers Special	2.03	.68	2.48	5.19	10.19	5.70	–	–	–
3	Old Deerfield 6-3-7 High Grade Tobacco	.52	.68	5.19	6.39	3.87	–	7.57	–	–
4	Old Deerfield 7-7-7 Grass Top Dressing	4.20	1.42	1.59	7.21	7.70	7.50	–	–	–
1	Old Deerfield 7-7-7 Grass Top Dressing	3.95	1.44	1.38	6.77	7.26	7.06	–	–	–
1	Old Deerfield 8-16-20 Concentrated	3.54	.93	3.92	8.39	16.47	20.89	–	4.05	2.00

a The water insoluble nitrogen was of inferior quality.

Mixtures Substantially Complying with Guarantees — Continued

Number of Samples	Name of Manufacturer and Brand	Nitrogen Found				Available Phosphoric Acid Found	Potash (K_2O) Found		Magnesium Oxide	
		In Ammoniacal Forms	In Nitrate Forms	In Organic Forms	Total		As Muriate	In Forms Other than Muriate	Found	Guaranteed
	Old Deerfield Fertilizer Co.,— Concluded									
2	Old Deerfield 8–16–20 Concentrated, Potash other than Muriate, 2% MgO . . .	3.29	1.12	4.37	8.78	17.02	–	22.48	4.02	2.00
1	Old Deerfield 10–6–4	5.74	3.09	1.25	10.08	4.94	6.18	–	–	–
1	Old Deerfield 10–6–4 (c)	3.21	1.36	4.72	9.29	7.29	4.62	–	–	–
2	Valley Brand 4–8–4	1.72	.59	1.96	4.27	9.23	2.96	1.63	–	–
1	Valley Brand 4–8–8	2.51	.89	1.37	4.77	9.02	7.14	.88	–	–
3	Valley Brand 5–8–7 Onion & Truck . .	3.31	.83	1.08	5.22	8.43	7.23	–	–	–
1	Valley Brand 8–16–20 Concentrated . .	3.60	1.43	3.07	8.10	16.11	21.19	–	–	–
	Olds & Whipple, Inc.									
1	Luxura 5–8–6	2.39	.53	2.58	5.50	10.75	6.58	–	–	–
3	O & W Fertilizer 4–8–10	2.04	.73	1.37	4.14	8.51	10.80	–	–	–
3	O & W 8–16–14 Fertilizer	4.71	.30	3.46	8.47	17.37	14.97	–	–	–
1	O & W 8–16–20 with Sulphate of Potash .	4.01	.97	3.41	8.39	14.76	–	21.38	–	–
4	O & W Blue Label Tobacco Fertilizer 6–3–6	.18	.39	5.51	6.08	3.62	–	6.93	–	–
1	O & W Blue Label Tobacco Fertilizer 6–3–6	.41	.58	5.25	6.24	4.03	–	6.65	–	–
3	O & W Complete Tobacco Fertilizer 5–3–5 .	.10	.76	4.23	5.09	3.65	–	5.87	–	–
3	O & W Corn Special 3–10–4 . . .	1.73	.58	.86	3.17	10.24	4.39	–	–	–

2	O & W 5-5-15 High Grade Tobacco Starter & Potash Compound	.20	1.84	3.38	5.42	5.38	-	16.31	-	-
2	O & W Market Garden Fertilizer 4-8-4 .	2.57	.54	.96	4.07	8.21	4.23	-	-	-
1	O & W Market Garden Fertilizer 5-10-5 .	2.98	.66	1.37	5.01	10.02	5.23	-	-	-
3	O & W Potato & General Purpose Fertilizer 4-8-7	2.46	.66	1.00	4.12	8.54	7.26	-	-	-
4	O & W Potato & General Purpose Fertilizer 5-8-7	3.32	.66	1.14	5.12	8.49	7.38	-	-	-
2	O & W Special Fertilizer 4-3-12 . . .	.20	.83	3.40	4.43	5.95	1.55	11.53	-	-
1	O & W Special Fertilizer 4-3-12 . . .	.13	.95	3.63	4.71	5.09	-	13.67	-	-
3	O & W Top Dressing & Grass Fertilizer 7-7-7	3.50	2.85	.87	7.02	7.38	7.30	-	-	-

c One other sample was deficient: see analysis in table of "Mixtures showing a commercial shortage of $1 or more per ton."

Mixtures Substantially Complying with Guarantees — Continued

Number of Samples	Name of Manufacturer and Brand	Nitrogen Found				Available Phosphoric Acid Found	Potash (K_2O) Found	
		In Ammoniacal Forms	In Nitrate Forms	In Organic Forms	Total		As Muriate	In Forms Other than Muriate
	F. G. Phillips Co.							
3	Ferti-Flora 3-3-3	1.34	1.95	.04	3.33	3.57	–	3.62
	Plantabbs Corp.							
4	Fulton's Plantabbs 11-15-20	3.71	7.74	.10	11.55	20.75	–	26.28
	Plantspur Products Co.							
2	Plantspur Fertilizer 3-3-2	2.86	.05	.73	3.64	3.09	2.35	–
	Rogers & Hubbard Co.							
2	Gro-Fast Plant Food 5-6-6	1.88	.11	3.14	5.13	6.06	–	5.61
2	Hubbard's All Soils Fertilizer 4-8-4	1.64	.66	1.87	4.17	8.29	4.50	–
1	Hubbard's Alsop Mixture No. 1, 3-3-12	.09	.08	3.62	3.79	5.64	–	12.63
2	Hubbard's Alsop Mixture No. 2, 5-4-8	.55	.61	4.25	5.41	5.20	–	9.12
2	Hubbard's Carnation Special 3-10-4	.45	.18	2.45	3.08	11.13	4.08	–
2	Hubbard's Climax Tobacco Fertilizer 5-3-5	.20	.93	4.05	5.18	3.71	–	5.96
2	Hubbard's Corn Fertilizer 4-8-7	1.74	.48	1.93	4.15	8.04	7.39	–
1	Hubbard's Corn Fertilizer 4-8-7	1.54	.71	1.96	4.21	8.31	7.45	–
4	Hubbard's Corn & Grain Fertilizer 3-10-4	1.35	.46	1.51	3.32	11.58	4.44	–
1	Hubbard's Corn & Grain Fertilizer 3-10-4	1.48	.51	1.32	3.31	9.73	4.55	–

1	Hubbard's Fruit Fertilizer 8-8-8	5.35	2.39	.20	7.94	8.72	3.45	4.54
1	Hubbard's Golf Course Fertilizer 8-6-2	2.76	.54	5.44	8.74	6.83	–	2.07
2	Hubbard's High Potash Fertilizer 4-8-10	1.64	.58	2.02	4.24	8.19	10.08	–
1	Hubbard's High Potash Fertilizer 4-8-10	1.75	.46	1.93	4.14	8.18	10.26	–
6	Hubbard's Potato Fertilizer 5-8-7	2.33	.70	2.17	5.20	8.48	7.36	–
2	Hubbard's Potato Fertilizer 5-8-7	2.50	.58	1.99	5.07	8.16	6.93	–
1	Hubbard's Rose Food 7-10-5	1.01	.16	6.34	7.51	11.59	1.36	5.68
2	Hubbard's Seeding Fertilizer 3-7-6	1.44	.40	1.17	3.01	9.76	6.20	–
3	Hubbard's Tobacco Grower 6-3-6	.57	.95	4.51	6.03	4.80	–	6.82
2	Hubbard's Tobacco Grower 6-3-6	.31	.95	4.78	6.04	3.86	–	7.12
3	Hubbard's Tobacco Starter 5-5-15	.21	2.57	2.41	5.19	6.46	–	16.45
1	Hubbard's Tobacco Starter 5-5-15	.21	1.69	2.64	4.54	7.22	–	16.28
4	Hubbard's Top Dressing 8-5-8	.18	7.65	.41	8.24	6.91	7.48	–
1	Hubbard's Top Dressing 8-5-8	.03	7.79	.41	8.23	7.59	7.47	–
4	Hubbard's Vegetable Manure 5-8-10	1.91	.93	2.33	5.17	9.14	–	10.68
1	Red H Brand 2-8-10	1.12	.19	.75	2.06	7.73	11.48	–
2	Red H Brand 3-10-4	2.01	.73	.49	3.23	10.49	4.28	–
6	Red H Brand 4-8-4	2.59	.64	.93	4.16	8.16	4.28	–
4	Red H Brand 4-8-4	2.46	.57	1.15	4.18	8.47	4.64	–
4	Red H Brand 4-8-7	2.54	.78	.87	4.19	8.00	6.95	–
1	Red H Brand 4-8-8	2.43	.71	1.10	4.24	8.68	7.87	–
5	Red H Brand 4-8-10	2.63	.72	.84	4.19	8.33	10.15	–
4	Red H Brand 4-8-10	2.60	.81	.76	4.17	8.47	10.10	–
1	Red H Brand 4-10-6	3.05	.62	.74	4.41	10.03	6.23	–

Mixtures Substantially Complying with Guarantees — Continued.

Number of Samples	Name of Manufacturer and Brand	Nitrogen Found				Available Phosphoric Acid Found	Potash (K_2O) Found	
		In Ammoniacal Forms	In Nitrate Forms	In Organic Forms	Total		As Muriate	In Forms Other than Muriate
	Rogers & Hubbard Co.—Concluded							
6	Red H Brand 5-8-7	3.45	.73	1.02	5.20	8.14	7.31	-
6	Red H Brand 5-8-7	3.49	.57	.96	5.02	8.30	7.79	-
1	Red H Brand 5-8-7	3.14	1.36	.76	5.26	8.89	7.59	-
3	Red H Brand 5-8-10	2.34	.70	2.25	5.29	8.09	10.69	-
2	Red H Brand 5-10-5	3.31	1.38	.62	5.31	10.26	5.37	-
5	Red H Brand 7-6-6	5.99	.49	.81	7.29	6.36	5.81	-
4	Red H Brand 7-6-6	5.81	.79	.60	7.20	6.61	6.19	-
3	Red H Brand 7-7-7	5.85	.44	.99	7.28	7.80	6.85	-
4	Red H Brand 8-16-14	6.60	1.62	.29	8.51	16.23	14.10	-
1	Red H Brand 8-16-14	5.67	2.60	.22	8.49	18.26	12.96	-
1	Red H Brand 8-16-20	4.39	.81	3.11	8.31	16.66	19.90	-
	O. M. Scott & Sons Co.							
2	Scotts Turf Builder 10-6-4	6.66	.05	3.77	10.48	6.33	2.98	1.89
	Standard Wholesale Phosphate & Acid Works, Inc.							
1	Standard 4-8-4	3.07	.14	.85	4.06	7.54	4.14	-
1	Standard 4-8-4 Potash from Sulphate	3.24	-	.82	4.06	8.42	1.45	3.50

2	Standard 4–8–7	2.99	.34	.85	4.18	8.27	7.65	–
2	Standard 4–8–10	2.87	.48	.80	4.15	8.16	9.70	–
2	Standard 5–8–7	3.55	.42	1.11	5.08	8.61	7.03	–
1	Standard 7–7–7	4.96	.33	1.17	6.46	6.54	10.78	–
	Sutton & Sons, Ltd.							
1	Sutton's Simplex Fertilizer 5–5–2	2.25	–	2.70	4.95	7.95	2.27	.53
1	Sutton's Simplex Fertilizer 5–5–2	1.87	.15	3.18	5.20	8.99	1.34	1.03
	Swift & Company Fertilizer Works							
3	Roselawn 5–8–7	3.43	.17	1.27	4.87	8.31	6.84	–
1	Roselawn 5–8–7	3.38	.10	1.36	4.84	8.10	6.87	–
1	Swift's Red Steer 3–12–6	2.03	.37	.51	2.91	12.19	6.23	–
1	Swift's Red Steer 4–8–10	2.46	.34	.86	3.66	8.33	9.77	–
1	Swift's Red Steer 5–8–7	3.37	.41	1.08	4.86	8.25	7.14	–
1	Swift's Special Golf Fertilizer 6–12–4 (*c*)	5.33	.21	.24	5.78	12.16	4.39	–
1	Swift's Special Golf Fertilizer 12–6–4	10.43	.53	.19	11.15	6.65	3.81	–
6	Vigoro 4–12–4	3.29	.42	.52	4.23	12.33	4.25	–
	F. Sylvester & Son							
1	Dove Brand Fertilizer 4–6–3	2.99	–	1.50	4.49	6.61	3.87	–
	Synthetic Nitrogen Products Corp.							
3	Nitrophoska 15–30–15	13.49	2.42	.14	16.05	31.01	15.53	–

c One other sample was deficient: see analysis in table of "Mixtures showing a commercial shortage of $1 or more per ton."

Mixtures Substantially Complying with Guarantees — Concluded

Number of Samples	Name of Manufacturer and Brand	Nitrogen Found				Available Phosphoric Acid Found	Potash (K_2O) Found	
		In Ammoniacal Forms	In Nitrate Forms	In Organic Forms	Total		As Muriate	In Forms Other than Muriate
	Tennessee Corporation							
5	Loma (5–10–4)	3.79	.40	.86	5.05	10.27	3.93	–
2	Loma (5–10–4)	3.95	.54	.62	5.11	10.80	3.74	–
1	Soil-Prep (4–2–2)	2.23	.15	1.99*a*	4.37	2.23	1.23	.83
	Universal Chemical Co.							
1	Electra 4–9–3	2.07	.55	2.79	5.41	10.99	.88	2.08
	Virginia-Carolina Chemical Corporation							
1	V-C Fairway Fertilizer 6–8–4	4.08	.30	1.37	5.75	9.10	4.39	–
1	V-C Fairway Fertilizer (New Process) 6–6–4 (1938 Stock)	4.40	–	1.19*a*	5.59	7.30	2.56	1.68
	C. P. Washburn Co.							
2	Corn and Vegetable 4–8–4	2.74	.70	.67	4.11	8.19	4.68	–
2	Market Garden 5–8–7	3.63	.79	.77	5.19	8.10	7.15	–
2	Special Potato 4–8–10	2.93	.75	.59	4.27	9.08	10.38	–
1	Washburn's 7–6–6	5.29	.72	.60	6.61	5.87	6.12	–
	Winslow Nurseries							
1	Green Valley Plant Food 5–10–7	.11	.84	4.08	5.03	10.51	6.82	–
1	Green Valley Plant Food 5–10–7	.09	.92	4.14	5.15	10.78	7.26	–

	Woodruff Fertilizer Works, Inc.							
4	Woodruff's 4-8-7 Fertilizer	2.07	.20	1.79	4.06	7.99	7.00	
1	Woodruff's Big Crop Fertilizer 5-8-7	2.11	.36	2.71	5.18	8.05	7.08	–
1	Woodruff's Market Garden Fertilizer 4-8-4	2.31	.20	1.60	4.11	8.05	4.06	–
1	Woodruff's Market Garden Fertilizer 4-8-4	2.25	.17	1.57	3.99	8.20	4.47	–
1	Woodruff's Onion Special Fertilizer 4-10-4	2.23	.03	1.80	4.06	10.38	4.29	–
2	Woodruff's Tobacco Special Fertilizer 6-3-6	.21	.96	4.81	5.98	4.01	–	7.24
2	Woodruff's Tobacco Starter 5-5-15	.16	1.84	3.05	5.05	5.20	–	15.90
2	Woodruff's Top Dresser 7-6-6	4.32	.75	1.91	6.98	5.64	6.78	–

a The water insoluble nitrogen was of inferior quality.

CHEMICALS AND RAW PRODUCTS

Summary of Results of the Inspection of Fertilizer Simples and Raw Products

Material	Number of Samples Collected.	Number of Analyses Made.	Average Percentage of Nitrogen.	Average Percentage of Total Phosphoric Acid.	Average Percentage of Available Phosphoric Acid.	Average Percentage of Water Soluble Potash.	Average Selling Price Per Ton.	Average Commercial Valuation per Ton.	Cost of One Pound of Plant Food. (Cents.)
Nitrate of soda	47	8	16.06	–	–	–	$34.96	$35.01	10.88 (nitrogen)
Nitrate of potash	8	6	12.97*a*	–	–	43.71	64.79	65.69	10.75 (nitrogen) 4.22 (potash)
Nitrate of soda-potash	3	1	14.70*b*	–	–	14.70	46.06	44.63	11.25 (nitrogen) 4.41 (potash)
Nitrate of lime	2	1	15.58	–	–	–	40.77	33.96	13.08 (nitrogen)
Cal-Nitro	10	5	20.48	–	–	–	39.23	40.34	9.58 (nitrogen)
Ammonium sulfate	54	12	20.58	–	–	–	36.46	36.22	8.86 (nitrogen)
Synthetic urea	15	4	42.02	–	–	–	69.30	73.96	8.25 (nitrogen)
Cyanamid	12	10	21.12	–	–	–	39.50	35.48	9.35 (nitrogen)
Ammo-Phos	4	1	10.92	49.65	47.77	–	62.49	72.41	7.59 (nitrogen 4.63 (available phosphoric acid)
Cottonseed meal	46	46	6.67	2.93	–	1.95*c*	31.57	28.01	23.67 (nitrogen)
Soya bean meal	20	20	7.17	1.53	–	2.57*c*	28.29	30.11	19.73 (nitrogen)
Linseed meal	2	2	5.14	1.86	–	1.28*c*	44.50	21.59	43.29 (nitrogen)
Castor pomace	8	8	5.85	2.17	–	1.12*c*	29.25	24.57	25.00 (nitrogen)
Dried blood	7	3	12.78	1.10	–	–	74.80	56.38	29.26 (nitrogen)
Milorganite	7	1	5.92	3.42	–	–	37.64	24.12	28.94 (nitrogen) 4.93 (available phosphoric acid)
Horn and hoof meal	2	2	14.44	.38	–	–	75.00	63.08	25.97 (nitrogen)
Superphosphate 16%	70	15	–	16.99	16.48	–	15.04	18.30	4.52 (available phosphoric acid)
Superphosphate 20%	62	14	–	21.20	20.60	–	19.76	22.86	4.75 (available phosphoric acid)
Superphosphate 40%	3	3	–	43.50	41.81	–	38.40	46.56	4.54 (available phosphoric acid)
Superphosphate 45% (A.A.A.)	11	11	–	44.65	44.48	–	35.10	48.99	3.94 (available phosphoric acid)
Superphosphate 47% (A.A.A.)	28	28	–	48.46	48.16	–	38.00	53.08	3.94 (available phosphoric acid)
Precipitated bone	5	3	–	39.88	38.82	–	44.66	43.06	5.70 (available phosphoric acid)
Basic slag phosphate	1	1	–	17.31	15.32	–	29.47	17.53	9.25 (available phosphoric acid)
Phosphate rock, finely ground	1	1	–	34.23	–	–	–	11.64	–
Muriate of potash 60%	45	16	–	–	–	60.16	42.59	45.71	3.54 (potash)
Muriate of potash 50%	2	2	–	–	–	50.05	40.20	38.04	4.02 (potash)
High grade sulfate of potash	6	4	–	–	–	49.56*d*	50.47	49.56	5.09 (potash)
Sulfate of potash-magnesia	2	1	–	–	–	28.36*e*	37.53	37.15	6.62 (potash)
Cotton hull ashes	9	9	–	2.48	–	34.50*f*	43.71	47.77	5.95 (potash)
Wood ashes	2	2	–	1.95	–	3.67*g*	–	10.54	–
Dry ground fish	17	8	9.57	7.21*h*	–	–	65.70	65.00	31.58 (nitrogen) 5.25 (phosphoric acid)
Animal tankage	34	12	8.04	11.47*i*	–	–	49.60	42.83	25.29 (nitrogen) 3.90 (phosphoric acid)
Ground bone	83	27	2.77	25.27*j*	–	–	35.44	30.50	27.22 (nitrogen) 4.03 (phosphoric acid)
Magnesium sulfate	3	2*k*	–	–	–	–	36.90	–	6.60 (magnesium oxide)
Manganese sulfate	2	2*l*	–	–	–	–	74.80	–	12.00 (manganese)
Ground tobacco stems	2	1	1.67	.87	–	4.40*c*	24.30	–	–
Pulverized manures:									
Sheep	38	13	1.62	1.17*m*	–	3.25*c*	34.92	–	–
Sheep and goat	20	6	1.55	1.37*m*	–	3.20*c*	35.32	–	–
Cattle	22	8	1.79	2.10*m*	–	1.48*c*	51.02	–	–
Poultry	4	2	3.52	2.13*m*	–	1.76*c*	44.00	–	–
Poultry manure and peat	1	1	2.72	3.48*m*	–	1.58*c*	30.00	–	–

a Average chlorine .36%.
b Average chlorine .41%.
c Total potash.
d Average chlorine 2.01%.
e Magnesium oxide 12.02%, chlorine 1.59%.
f Calcium oxide 7.85, magnesium oxide 3.03%, chlorine 2.84%, insoluble matter 21.06%, moisture 5.32%.

Notes *g-m* will be found on page 37.

Nitrogen Compounds

The chemicals and unmixed materials under this heading are valued chiefly for the nitrogen which they contain. Some of them, however, contain more than this one element; the nitrate of potash containing potash; the calcium nitrate and cyanamid containing lime; and the organic vegetable substances containing small quantities of phosphoric acid and potash, as will be noticed by a reference to the summary table on the previous page.

Brands showing a commercial shortage of one dollar or more per ton are listed by themselves, serious deficiencies being emphasized by boldface type.

Sulfate of Ammonia and Nitrate of Soda

Manufacturer	Sulfate of Ammonia			Nitrate of Soda		
	Number of Samples	Nitrogen		Number of Samples	Nitrogen	
		Found	Guaranteed		Found	Guaranteed
American Agricultural Chemical Co.	6	20.32	20.50	–	–	–
	7	20.53	20.50	–	–	–
Barrett Co.	4*a*	20.84	20.56	4*a*	16.03	16.00
	5	20.41	20.56	9*a*	16.25	16.00
Chilean Nitrate Sales Corp.	–	–	–	10*a*	16.06	16.00
	–	–	–	1*a*	16.08	16.00
	–	–	–	9*b*	16.03	16.00
	–	–	–	6*c*	15.92	16.00
Consolidated Rendering Co.	7	20.42	20.50	7	16.11	16.00
	6	20.67	20.50	–	–	–
Eastern States Farmers' Exchange	4	20.67	20.50	–	–	–
Ford Motor Co.	1	20.86	20.80	–	–	–
International Agricultural Corp.	9	20.47	20.50	–	–	–
	3	20.56	20.50	–	–	–
Monsanto Chemical Co.	–	–	–	1	16.05	16.25
Old Deerfield Fertilizer Co., Inc.	1	20.48	20.50	–	–	–
Sample Showing Commercial Shortage of More than $1.00 Per Ton						
Consolidated Rendering Co.	1	**19.60***d*	20.50	–	–	–

a Arcadian. *b* Champion brand. *c* Old Style.
d Contained 1.87% potash, .13% phosphoric acid, 1.11% calcium oxide, and 1.58% chlorine; it showed a commercial deficiency in nitrogen of $1.58 per ton.

Nitrate of Potash, Nitrate of Soda-Potash

Manufacturer	Number of Samples	Nitrogen		Potassium Oxide		Chlorine
		Found	Guaranteed	Found	Guaranteed	
American Agricultural Chemical Co.	1*a*	**12.81**	13.00	**43.15**	44.00	.62
Apothecaries Hall Co.	2	13.02	13.00	44.27	44.00	.55
Armour Fertilizer Works	1	13.03	13.00	43.70	44.00	.45
Berkshire Chemical Co.	1	13.03	13.00	43.93	44.00	.26
Chilean Nitrate Sales Corporation	3*b*	14.70	15.00	14.70	14.00	.41
Eastern States Farmers' Exchange	1	12.97	13.00	43.69	44.00	.36
Old Deerfield Fertilizer Co., Inc.	2	13.01	13.00	43.72	44.00	.49

a Commercial shortage $1.13 per ton.
b Nitrate of Soda-Potash.

g Calcium oxide 33.26%, magnesium oxide 3.06%, insoluble matter 10.06%, moisture 18.05%.
h Chlorine .26%.
i Average tankage finer than 1/50 inch, 48.12%; coarser than 1/50 inch, 51.88%.
j Average bone finer than 1/50 inch, 69.99%; coarser than 1/50 inch, 30.01%.
k Magnesium oxide 27.92%.
l Manganese 27.21%.
m Average organic matter: sheep manure 39.93%, sheep and goat manure 34.22%, cattle manure 59.29%, poultry manure 56.46%, poultry manure and peat 63.18%.

NOTE: The average pound cost of the major plant food elements from all of the dried pulverized natural manures taken collectively would be as follows: nitrogen 73 cents, phosphoric acid 12 cents, potash 16 cents.

Calcium Nitrate, Cal-Nitro, Calcium Cyanamid, and Synthetic Urea

Manufacturer and Brand	Number of Samples	Nitrogen		Moisture
		Found	Guaranteed	
American Cyanamid Co.				
Pulverized Aero Cyanamid	2	21.98	22.00	.24
Granular Aero Cyanamid	1	21.29	21.00	.14
Granular Aero Cyanamid	2	21.04	21.00	.48
Granular Aero Cyanamid	1	20.84	21.00	.58
Granular Aero Cyanamid	1	21.20	21.00	.19
Granular Aero Cyanamid	1	20.76	21.00	.60
Granular Aero Cyanamid	1	20.87	21.00	.48
Granular Aero Cyanamid	1	21.40	21.00	.05
Granular Aero Cyanamid	1	20.72	21.00	.84
Granular Aero Cyanamid	1	20.82	21.00	.63
Armour Fertilizer Works				
Cal-Nitro	2	20.11	20.50	2.60
Berkshire Chemical Co.				
Cal-Nitro	1	20.37	20.50	1.95
E. I. du Pont de Nemours & Co., Inc.				
Uramon	4	42.12	42.00	.27
Uramon	2	42.10	42.00	.13
Eastern States Farmers' Exchange				
Eastern States Calnitro	4	20.47	20.50	2.21
Eastern States Agricultural Urea	8	42.01	42.00	.44
Foodndrink Fertilizer Co.				
Foodndrink (a)	1	14.63	13.00	.25
Old Deerfield Fertilizer Co., Inc.				
Cal-Nitro	1	20.41	20.50	2.29
Cal-Nitro	2	20.37	20.50	1.98
Synthetic Nitrogen Products Corp.				
Urea	1	45.73	46.00	.11
Calcium Nitrate	2	15.58	15.00	7.24

a Most of the nitrogen was present as nitrate.

Cottonseed Meal

Manufacturer and Brand	Nitrogen	
	Found	Guaranteed
Ashcraft-Wilkinson Co.		
Cow-Eta Brand	6.51	6.56
Cow-Eta Brand	6.53	6.56
Cow-Eta Brand	6.49	6.56
Cow-Eta Brand	6.41	6.56
Cow-Eta Brand	6.72	6.56
Cow-Eta Brand	6.55	6.56
Humphreys-Godwin Co.		
Dixie Brand	6.53	6.56
Dixie Brand	6.64	6.56
Dixie Brand	6.62	6.56
Dixie Brand	6.45	6.56
Dixie Brand	6.48	6.56
Dixie Brand	6.41	6.56
Dixie Brand	6.44	6.56
Dixie Brand	6.57	6.56
Dixie Brand	6.66	6.56
Dixie Brand	6.59	6.56
Dixie Brand	6.61	6.56
Dixie Brand	6.40	6.56
Dixie Brand	6.46	6.56
Dixie Brand	6.49	6.56
Dixie Brand	6.57	6.56
Dixie Brand	6.69	6.56
Dixie Brand	6.73	6.56
Dixie Brand	6.74	6.56
Dixie Brand	6.61	6.56
L. B. Lovitt & Co.		
Lovit Brand	6.55	6.56
Lovit Brand	6.64	6.56
Lovit Brand	6.73	6.56
Lovit Brand	6.57	6.56
L. B. Lovitt & Co.—Con.		
Lovit Brand	6.62	6.56
Lovit Brand	6.53	6.56
Lovit Brand	6.58	6.56
Lovit Brand	6.40	6.56
Lovit Brand	6.55	6.56
Lovit Brand	6.76	6.56
Lovit Brand	6.71	6.56
Mississippi Valley Grain & Feed Co. (Registered by International Agricultural Corp.)		
Kent Brand	6.56	6.56
Kent Brand	6.64	6.56
Kent Brand	6.71	6.56
Kent Brand	6.76	6.56
Kent Brand	6.56	6.56
Kent Brand	6.73	6.56
Perkins Oil Co.		
Golden Rod Brand	6.58	6.56
Golden Rod Brand	6.50	6.56
Golden Rod Brand	6.44	6.56
Brand Showing Commercial Shortage of More than $1 per Ton		
American Agricultural Chemical Co.		
Cottonseed Meal	6.30a	6.56

a Commercial shortage per ton $1.09.

Soy Bean Meal

Manufacturer and Brand	Nitrogen Found	Nitrogen Guaranteed	Manufacturer and Brand	Nitrogen Found	Nitrogen Guaranteed
Central Soya Co., Inc.			**Glidden Co., Chicago, Ill.**		
Central Star Brand 44%	7.23	7.04	(Registered by Apothecaries Hall Co.)		
Central Star Brand 44%	7.42	7.04	Soy Bean Meal . .	7.66	7.04
Central Star Brand 44%	7.44	7.04			
Central Star Brand 44%	7.41	7.04	**A. E. Staley Manufacturing Co.**		
Central Star Brand 44%	7.33	7.04	(Registered by Old Deerfield Fertilizer Co., Inc.)		
Central Star Brand 44%	7.39	7.04			
Central Star Brand 44%	7.34	7.04	Soy Bean Meal 41% .	6.86	6.56
Central Star Brand 44%	7.28	7.04	Soy Bean Meal 41% .	6.88	6.56
Central Star Brand 44%	7.38	7.04	Soy Bean Meal 41% .	6.75	6.56
Central Star Brand 44%	7.30	7.04	Soy Bean Meal 41% .	6.74	6.56
Central Star Brand 44%	7.32	7.04	Toasted Soy Bean Meal 44%	7.37	7.04
Central Star Brand 44%	7.43	7.04	Toasted Soy Bean Meal 44%	7.10	7.04
			Toasted Soy Bean Meal 44%	7.13	7.04

Castor Pomace and Linseed Meal

Manufacturer	Brand	Nitrogen Found	Nitrogen Guaranteed	Moisture
American Agricultural Chemical Co.	Castor Pomace . . .	5.51	4.50	12.22
Apothecaries Hall Co. . . .	Castor Pomace . . .	5.71	4.50	11.42
Armour Fertilizer Works . . .	Castor Pomace . . .	5.44	4.50	11.53
Bisbee Linseed Co., Amsterdam, N.Y.	Castor Pomace . . .	5.55	4.50	11.76
	K & M Old Process Linseed Meal	5.15	5.12	9.82
Bisbee Linseed Co., Philadelphia, Penn.	Bisbee Brand Old Process Linseed Meal . . .	5.13	5.00	10.94
Consolidated Rendering Co. . .	Castor Pomace . . .	5.51	4.50	11.70
Eastern States Farmers' Exchange .	Castor Pomace . . .	6.32	5.00	9.12
Spencer Kellogg & Sons, Inc. . .	Castor Pomace . . .	6.27	4.52	9.65
Old Deerfield Fertilizer Co., Inc. .	Old Deerfield Castor Pomace	5.75	4.50	10.06

Dried Blood, Milorganite and Horn and Hoof Meal

Manufacturer and Brand	Number of Samples	Nitrogen Found	Nitrogen Guaranteed	Phosphoric Acid Found	Phosphoric Acid Guaranteed	Moisture
Apothecaries Hall Co.						
Horn and Hoof Meal	1	14.44	14.80	.38	–	10.27
Consolidated Rendering Co.						
Dried Blood	4	13.10	12.00	.68	–	10.44
John Reardon & Sons Division of Wilson & Co., Inc.						
Rearco Dried Blood	2	12.35	12.00	1.65	–	13.33
Rogers & Hubbard Co.						
Dried Blood	1	13.57	12.00	.65	–	8.28
Hoof and Horn Meal	1	14.26	14.00	.55	–	9.61
Sewerage Commission of City of Milwaukee						
Milorganite	7	5.92	6.00	3.42	2.75	5.90

Phosphoric Acid Compounds

Superphosphate, Precipitated Bone, and Basic Slag Phosphate

Manufacturer and Brand	Number of Samples	Total Phosphoric Acid	Available Phosphoric Acid		Moisture
			Found	Guaranteed	
American Agricultural Chemical Co.					
AA Superphosphate 16%	8	17.09	16.58	16.00	8.18
AA Superphosphate 16%	7	16.96	16.57	16.00	8.26
AA Superphosphate 20%	11	21.00	20.44	20.00	5.50
AA Superphosphate 40%	1	39.94	39.44	40.00	3.46
Co-Op Superphosphate 16%	4	16.66	16.19	16.00	7.52
Apothecaries Hall Co.					
Superphosphate 16%	5	16.81	16.19	16.00	8.18
Granular Superphosphate 20%	3	21.34	20.60	20.00	1.86
Armour Fertilizer Works					
Armours Big Crop Superphosphate 16%	5	17.26	16.70	16.00	5.82
Armours Big Crop Superphosphate 20%	8	20.15	19.65	20.00	5.55
Berkshire Chemical Co.					
Precipitated Bone	1	39.30	38.12	38.00	14.51
Consolidated Rendering Co.					
Corenco Superphosphate 16%	1	18.09	17.54	16.00	5.64
Corenco Superphosphate 16%	7	16.92	16.51	16.00	6.57
Corenco Superphosphate 16%	5	16.38	16.07	16.00	6.04
Corenco Superphosphate 20%	6	20.40	20.21	20.00	7.09
Davison Chemical Corporation					
Davco Granular 20% Superphosphate	7	21.96	21.70	20.00	1.96
Eastern States Farmers' Exchange					
Eastern States 20% Superphosphate Pulverized	10	21.45	20.82	20.00	4.88
Eastern States 40% Double Granular Superphosphate	1	44.10	42.24	40.00	1.91
Eastern States 40% Double Granular Superphosphate	1	42.89	41.27	40.00	2.22
Eastern States Precipitated Bone	2	40.28	39.33	38.00	13.85
International Agricultural Corporation					
International 16% Superphosphate	5	16.93	16.17	16.00	6.73
International 16% Superphosphate	10	16.96	16.31	16.00	7.05
International 20% Superphosphate	7	20.84	20.40	20.00	5.49
International Granular 20% Superphosphate	2	21.40	20.95	20.00	2.25
Basic Slag	1	17.31	15.32	14.40	4.93
Miller Chemical & Fertilizer Corporation					
Rich Yield 20% Superphosphate	1	20.83	20.64	20.00	5.67
Old Deerfield Fertilizer Co., Inc.					
Old Deerfield 16% Superphosphate	3	17.67	17.36	16.00	4.74
Old Deerfield 20% Superphosphate	1	19.93	19.87	20.00	7.20
Old Deerfield Precipitated Bone	2	39.02	37.70	38.00	15.18
Olds & Whipple, Inc.					
O & W Superphosphate 16%	2	16.44	16.13	16.00	7.69
O & W Superphosphate 20%	1	22.02	21.24	20.00	1.50
Rogers & Hubbard Co.					
Hubbard's 16% Superphosphate	5	18.08	17.91	16.00	5.52
Hubbard's 20% Superphosphate	3	21.05	20.87	20.00	5.74
Ruhm Phosphate & Chemical Co.					
Ruhm's Phosphate Rock (Washed and Ground)	1	34.23*a*	–	–	.83
Soil Builders, Inc.					
Colloidal Phosphate with Mineral Colloids	1	23.12*b*	–	–	4.81
Standard Wholesale Phosphate & Acid Works, Inc.					
Standard 16% Superphosphate	2	17.37	16.56	16.00	6.98
Standard 20% Superphosphate	1	21.93	21.41	20.00	1.70
Standard Ungranulated 45% Superphosphate	1	44.40	44.22	45.00	5.54
C. P. Washburn Co.					
Superphosphate 16%	1	17.36	16.60	16.00	7.20

Brand Showing Commercial Shortage of More than $1 per Ton

Acme Guano Co.					
Acme 20% Superphosphate	1*c*	**18.60**	**18.10**	20.00	10.29

a Guaranteed to contain 34.3% total phosphoric acid; no available phosphoric acid guaranteed.
b Guaranteed to contain 22% total phosphoric acid; no available phosphoric acid guaranteed.
c Commercial shortage per ton $1.62.

Triple Superphosphate, 45% Available Phosphoric Acid

Distributed in Massachusetts by the Agricultural Adjustment Administration
(Each analysis represents a carload)

Manufacturer and Brand	Total Phosphoric Acid	Available Phosphoric Acid		Moisture
		Found	Guaranteed	
. S. Phosphoric Products Corp., Tampa, Fla.				
Triple Superphosphate 47%	49.25	48.94	47.00	3.33
Triple Superphosphate 47%	49.40	49.09	47.00	3.33
Triple Superphosphate 47%	48.70	48.35	47.00	4.04
Triple Superphosphate 47%	48.45	48.19	47.00	3.09
Triple Superphosphate 47%	47.86	47.58	47.00	3.75
Triple Superphosphate 47%	47.53	47.36	47.00	3.73
Triple Superphosphate 47%	49.37	49.23	47.00	3.53
Triple Superphosphate 47%	47.38	47.19	47.00	3.48
Triple Superphosphate 47%	48.38	48.25	47.00	3.25
Triple Superphosphate 47%	48.83	48.59	47.00	3.20
Triple Superphosphate 47%	48.77	48.51	47.00	3.42
Triple Superphosphate 47%	48.98	48.72	47.00	3.41
Triple Superphosphate 47%	49.12	48.80	47.00	3.28
Triple Superphosphate 47%	48.43	48.17	47.00	3.82
Triple Superphosphate 47%	49.69	49.42	47.00	2.68
Triple Superphosphate 47%	49.44	49.17	47.00	2.55
Triple Superphosphate 47%	47.66	47.46	47.00	3.08
Triple Superphosphate 47%	48.16	47.97	47.00	4.14
Triple Superphosphate 47%	49.18	48.91	47.00	3.55
Triple Superphosphate 47%	49.57	49.33	47.00	3.55
Triple Superphosphate 47%	48.23	48.17	47.00	3.28
Triple Superphosphate 47%	47.89	47.63	47.00	3.10
Triple Superphosphate 47%	48.21	47.99	47.00	3.66
Triple Superphosphate 47%	47.14	46.88	47.00	3.83
Triple Superphosphate 47%	46.98	46.75	47.00	4.68
Triple Superphosphate 47%	48.44	48.18	47.00	2.99
Triple Superphosphate 47%	47.78	47.47	47.00	2.42
Triple Superphosphate 47%	47.76	47.45	47.00	3.64
Standard Wholesale Phosphate & Acid Works, Inc., Baltimore, Md.				
Triple Superphosphate 45%	45.61	45.37	45.00	4.23
Triple Superphosphate 45%	44.92	44.63	45.00	4.40
Triple Superphosphate 45%	44.91	44.63	45.00	4.38
Triple Superphosphate 45%	45.06	44.90	45.00	4.58
Triple Superphosphate 45%	44.89	44.64	45.00	4.40
Triple Superphosphate 45%	44.91	44.69	45.00	4.97
Triple Superphosphate 45%	44.58	44.48	45.00	5.04
Triple Superphosphate 45%	44.35	44.20	45.00	6.05
Triple Superphosphate 45%	43.97	43.87	45.00	6.05
Triple Superphosphate 45%	45.72	45.61	45.00	6.50

Carload Showing Commercial Shortage of More than $1 per Ton

Standard Wholesale Phosphate & Acid Works, Inc. Triple Superphosphate 45%	**43.24**	**43.11***a*	45.00	4.97

a Commercial shortage per ton $1.36.

Potash Compounds

Muriate and High Grade Sulfate of Potash and Sulfate of Potash-Magnesia

Manufacturer	Muriate of Potash			High Grade Sulfate of Potash			
	Number of Samples	Potash		Number of Samples	Potash		Chlorine
		Found	Guaranteed		Found	Guaranteed	
American Agricultural Chemical Co.	1	59.68	60.00	–	–	–	–
	1	59.12	60.00	–	–	–	–
	1	59.01	60.00	–	–	–	–
	1	59.52	60.00	1	49.38	48.00	1.93
American Potash & Chemical Corp.	1	61.30	60.00	–	–	–	–
Armour Fertilizer Works	3	59.99	60.00	–	–	–	–
Consolidated Rendering Co.	7	50.14	50.00	–	–	–	–
	3	60.49	60.00	2	48.83	48.00	2.00
	7	61.00	60.00	–	–	–	–
Eastern States Farmers' Exchange	7	59.92	60.00	1	50.61	48.00	1.53
International Agricultural Corp.	10	60.10	60.00	–	–	–	–
N. V. Potash Export My., Inc.	12	50.01	50.00	2	49.68	48.00	2.11
	5	60.13	60.00	2*a*	28.36	25.00	1.59
Old Deerfield Fertilizer Co., Inc.	1	60.57	60.00	–	–	–	–
Potash Company of America	1	60.80	60.00	–	–	–	–
Brand Showing Commercial Shortage of More than $1 per Ton							
American Agricultural Chemical Co.	1*b*	**58.28**	60.00	–	–	–	–
	1*c*	**56.59**	60.00	–	–	–	–
	1*d*	**57.40**	60.00	–	–	–	–

a Sulfate of Potash-Magnesia. Magnesium oxide 12.02%.
b Commercial deficiency $1.31. Insoluble matter 1.98%.
c Commercial deficiency $2.59. Insoluble matter 3.08%.
d Commercial deficiency $1.98. Insoluble matter 2.54%.

Products Supplying Nitrogen and Phosphoric Acid

Dry Ground Fish

Manufacturer	Number of Samples	Nitrogen		Phosphoric Acid		Chlorine
		Found	Guaranteed	Found	Guaranteed	
American Agricultural Chemical Co.	1	9.22	9.46	7.14	5.00	.11
Armour Fertilizer Works	2	9.71	9.46	6.55	5.00	.09
Berkshire Chemical Co.	3	9.51	9.46	6.70	5.00	.23
Consolidated Rendering Co.	1	9.21	9.00	6.65	5.00	.44
Old Deerfield Fertilizer Co., Inc.	4	9.66	9.46	7.33	5.00	.25
Olds & Whipple, Inc.	3	9.49	9.46	7.29	5.00	.17
Rogers & Hubbard Co.	1	9.54	9.46	7.20	5.00	.19
Standard Wholesale Phosphate & Acid Works, Inc.	2	8.51	8.00	9.19	1.00	.17

Ammo-Phos

Manufacturer	Number of Samples	Nitrogen		Phosphoric Acid		
				Total	Available	
		Found	Guaranteed		Found	Guaranteed
American Cyanamid Co.	4	10.92	11.00	49.65	**47.77**	48.00

Animal Tankage

Manufacturer	Number of Samples	Nitrogen		Total Phosphoric Acid		Degree of Fineness	
		Found	Guaranteed	Found	Guaranteed	Finer than 1/50 Inch	Coarser than 1/50 Inch
American Agricultural Chemical Co.	7	8.20	8.22	11.33	4.58	49.63	50.37
	3	8.00	7.40	11.87	9.15	57.39	42.61
Apothecaries Hall Co.	1	8.97	9.80	9.60	3.00	32.30	67.70
Consolidated Chemical Industries, Inc.	1	8.73	7.50	1.38	none	55.94	44.06
Consolidated Rendering Co.	1	7.87	8.22	12.33	4.58	48.45	51.55
	8	8.22	8.22	11.14	4.58	48.90	51.10
	7	8.13	8.22	11.92	4.58	45.45	54.55
	2	7.21	7.40	12.70	9.15	45.07	54.93
A. W. Hunt	1	5.10	5.00	14.31	14.00	51.97	48.03
N. Roy & Son	1	7.63	7.00	11.78	8.00	48.31	51.69
Woodard Bros.	1	3.88	4.50	23.74	18.00	36.88	63.12

Brand Showing Commercial Shortage of More than $1 per Ton

Armour Fertilizer Works	1*a*	6.87	7.40	5.51	4.00	53.17	46.83

a Commercial shortage per ton $1.31.

Ground Bone

Manufacturer	Number of Samples	Nitrogen		Total Phosphoric Acid		Degree of Fineness	
		Found	Guaranteed	Found	Guaranteed	Finer than 1/50 Inch	Coarser than 1/50 Inch
Acme Guano Co.	1	3.01	2.47	24.16	23.00	54.04	45.96
American Agricultural Chemical Co.	10	2.58	2.47	25.88	23.00	73.78	26.22
	1	3.07	2.47	25.84	23.00	73.59	26.41
Apothecaries Hall Co.	4	2.56	2.47	26.56	22.00	77.48	22.52
	1	3.83	3.70	20.97	21.00	52.25	47.75
Armour Fertilizer Works	3	2.89	2.47	22.65	23.00	68.06	31.94
Berkshire Chemical Co.	1	2.89	2.05	23.99	25.00	65.18	34.82
Joseph Breck & Sons	1	2.85	2.47	23.03	22.88	77.78	22.22
Consolidated Chemical Industries, Inc.	4	2.06	2.00	25.72	18.00	76.20	23.80
Consolidated Rendering Co.	9	2.62	2.47	25.91	23.00	74.91	25.09
	2	3.82	4.00	22.59	20.00	41.77	58.23
Eastern States Farmers' Exchange	6	2.86	2.50	23.21	23.00	63.96	36.04
Goulard & Olena, Inc.	4	3.80	2.40	23.98	22.75	39.95	60.05
A. H. Hoffman, Inc.	3	3.79	3.70	23.41	20.00	58.67	41.33
International Agricultural Corp.	5	2.79	2.47	25.87	23.00	71.00	29.00
Miller Chemical & Fertilizer Corp.	1	2.77	2.47	26.93	22.00	67.65	32.35
Old Deerfield Fertilizer Co., Inc.	2	2.56	2.47	25.48	22.00	79.06	20.94
John Reardon & Sons Division of Wilson & Co., Inc.	8	2.64	2.47	26.51	22.88	71.75	28.25
Rogers & Hubbard Co.	3	2.33	2.47	29.19	23.00	74.29	25.71
	2	3.94	3.70	24.98	24.70	95.09	4.91
	5	4.01	3.70	22.55	20.00	58.06	41.94
	1	3.57	3.70	25.12	21.50	72.05	27.95
F. Rynveld & Sons, Inc.	1	2.16	2.47	30.01	22.00	83.20	16.80
	2	2.40	2.47	28.80	22.00	72.49	27.51
Standard Wholesale Phosphate & Acid Works, Inc.	1	2.62	2.47	24.90	23.00	67.90	32.10
Swift & Company Fertilizer Works	7	2.62	2.47	26.29	23.00	66.11	33.89
C. P. Washburn Co.	1	2.30	2.47	27.42	23.00	72.67	27.33

Pulverized Animal Manures

Manufacturer	Brand	Number of Samples	Total Nitrogen		Total Phosphoric Acid		Total Potash		Organic Matter	Moisture
			Found	Guaranteed	Found	Guaranteed	Found	Guaranteed		
American Agricultural Chemical Co.	Pulverized Sheep and Goat Manure	7	1.39	1.25	1.43	1.00	3.34	2.00	28.98	23.29
Apothecaries Hall Co.	Liberty Domestic Sheep Manure	3	1.57	1.00	.88	.50	2.56	1.00	44.30	12.24
Armour Fertilizer Works	Sheep and Goat Manure	3	1.59	1.25	1.48	1.00	3.28	2.00	35.77	18.91
Atkins & Durbrow, Inc.	Improved Driconure	4	2.70	2.00	3.23	1.00	1.66	1.00	54.17	16.90
Barber & Bennett, Inc.	Sheepex 100% Montana Sheep Manure	1	2.01	1.25	1.24	1.00	2.12	2.00	51.31	11.26
Buell Fertilizer Co.	Buell Peat Poultry Manure	1	2.72	2.50	3.48	2.50	1.58	1.50	63.18	12.94
Consolidated Rendering Co.	Corenco Sheep Manure	9	1.55	1.25	1.14	1.00	3.34	2.00	37.12	21.26
Davey Tree Expert Co.	Davey Shredded Cattle Manure	1	2.13	1.00	2.97	1.00	2.25	2.00	78.40	5.84
Girvin Fertilizer Co.	Comonite Dehydrated Cow Manure	1	1.24	1.18	.82	.49	.35	.16	43.60	4.64
Goulard & Olena, Inc.	G & O Sheep Manure	2	1.81	1.50	1.29	1.50	4.34	2.00	46.05	8.78
A. H. Hoffman, Inc.	Hoffman's Cow Manure (Dehydrated)	4	2.11	2.00	1.71	2.00	2.10	2.00	79.55	6.58
	Hoffman's Sheep Manure Kiln Dried	4	2.10	1.85	1.01	1.00	1.84	2.00	57.40	6.15
International Agricultural Corp.	International Caribee Sheep Manure	6	1.74	1.25	1.82	1.00	3.57	2.00	36.58	21.50
Miller Chemical & Fertilizer Corp.	Sheep Manure	1	1.71	1.25	1.14	1.00	4.25	1.00	40.70	14.97
Natural Guano Co.	Sheep's Head Brand Pulverized Sheep Manure	1	1.69	2.00	1.01	1.00	2.75	2.00	57.72	8.46
		1a	**1.43**	2.00	.78	1.00	**1.85**	2.00	59.21	8.14
Norwood Brand Fertilizer Co.	Norwood Brand Sheep Manure & Wool Waste	4	1.52	1.83	.79	.89	4.23	1.03	37.04	7.44
Old Deerfield Fertilizer Co., Inc.	Pulverized Sheep & Goat Manure	1	1.60	1.25	1.10	1.00	3.50	2.00	39.39	22.58

Pacific Manure & Fertilizer Co.	Groz-It Brand Pulverized Sheep Manure	1	1.69	1.25	.97	1.00	3.11	2.00	43.14	13.27
Premier Poultry Manure Division, North American Car Corp.	Premier Brand Pulverized Poultry Manure	3	5.14	4.93	2.25	2.75	1.06	1.30	57.76	15.08
	Premier Brand Pulverized Sheep Manure	1	2.11	1.65	2.03	1.00	2.37	2.00	55.35	6.99
Pulverized Manure Co.	Wizard Brand Pulverized Sheep Manure	4	1.98	2.00	1.87	1.00	3.70	2.00	59.54	7.74
	Wizard Brand Pulverized Cow Manure	4	2.09	2.00	1.55	1.00	2.10	1.00	63.86	7.12
Ramshorn Mills	Sheep Manure-Wool Waste	1b	1.68	2.00	1.19	.75	3.38	5.00	36.73	6.03
John Reardon & Sons Division of Wilson & Co., Inc.	Rearco Sheep & Goat Manure	3	1.60	1.25	1.08	1.00	3.48	2.00	40.10	17.83
Rogers & Hubbard Co.	Hubbard's Sheep & Goat Manure	5	1.74	1.25	1.43	1.00	3.49	2.00	40.20	18.47
F. Rynveld & Sons, Inc.	Natural Moo Cow Fertilizer	1	1.64	1.42	1.32	.96	1.89	.44	42.79	6.83
Standard Wholesale Phosphate & Acid Works, Inc.	Standard Sheep and Goat Manure	1	1.82	1.25	1.04	1.00	3.17	2.00	50.25	13.17
Stockdale Fertilizer Co.	Ovene Fertilizer Pure Sheep Manure	1	2.29	2.00	1.41	1.00	2.20	2.00	63.89	9.36
Swift & Company Fertilizer Works	Swift's Pulverized Sheep Manure	4	1.90	1.85	1.34	1.00	3.38	1.75	51.85	8.26
Walker-Gordon Laboratory Co., Inc.	Bovung	6	1.97	2.00	2.08	2.00	2.50	2.00	78.13	7.64
Thomas Wood & Sons, Inc.	Woodgro Pure Cow Manure Dehydrated	1	2.05	2.00	2.20	2.00	4.87	3.00	67.08	9.41

a Commercial shortage $2.35 per ton.
b Commercial shortage $2.19 per ton.

Miscellaneous Fertilizer Materials

Cotton Hull Ashes and Wood Ashes

Manufacturer and Brand	Potassium Oxide		Phosphoric Acid		Calcium Oxide	Magnesium Oxide	Chlorine	Moisture	Insoluble Matter
	Found	Guaranteed	Found	Guaranteed					
Ted Alkire									
Kireal (Cotton Hull Ashes)	39.26	30.00	2.82	–	7.89	3.53	3.18	5.24	11.90
Kireal (Cotton Hull Ashes)	32.66	30.00	2.43	–	8.79	2.77	2.17	7.63	16.03
Apothecaries Hall Co.									
Cotton Hull Ashes	34.17	35.00	2.02	–	9.00	3.51	–	6.99	14.73
Berkshire Chemical Co.									
Cotton Hull Ashes	31.18	30.00	2.02	–	10.47	3.62	–	3.34	21.59
Eastern States Farmers' Exchange									
Cotton Hull Ashes	30.06	25.00	2.51	–	9.63	3.17	–	8.44	15.00
John Joynt									
Canada Wood Ashes	3.80	3.00	2.07	1.00	35.15*a*	3.93	–	14.48	11.53
Canada Wood Ashes	3.64	3.00	1.93	1.00	32.88*a*	2.88	–	18.76	9.77
Old Deerfield Fertilizer Co., Inc.									
Old Deerfield 35% Cotton Hull Ashes	35.75	35.00	2.52	–	6.61	2.74	–	4.79	23.41
Old Deerfield 30% Cotton Hull Ashes	30.43	30.00	2.56	–	9.72	3.24	–	5.11	27.27
Old Deerfield 30% Cotton Hull Ashes	30.02	30.00	2.44	–	8.69	3.07	–	5.83	27.78
Old Deerfield 30% Cotton Hull Ashes	30.22	30.00	2.85	–	8.55	3.18	–	5.61	27.99

a Guaranteed 20%.

Sterilized Ground Tobacco Stem Meal

Manufacturer	Nitrogen		Potassium Oxide		Phosphoric Acid	Organic Matter	Moisture
	Found	Guaranteed	Found	Guaranteed			
Tobacco By-Products & Chemical Corp.*	1.67	1.16	4.40	4.00	.87	52.73	6.45

*Louisville, Ky. (Registered and sold by Apothecaries Hall Co.)

Magnesium Sulfate

Manufacturer and Brand	Magnesium Oxide		Calcium Oxide	Moisture	Insoluble Matter
	Found	Guaranteed			
F. W. Berk & Co., Inc.*					
Emjeo	25.94	30.00	2.99	3.17	2.83
Old Deerfield Fertilizer Co., Inc.					
Magnesium Sulfate (Emjeo)	29.90*a*	30.00	2.93	.44	2.51

* Chrysler Bldg., 405 Lexington Ave., New York, N. Y. (Registered and sold by Berkshire Chemical Co.) Commercial Shortage $5.16 per ton.
a Composite of two samples representing 4.2 tons.

Manganese Sulfate

Manufacturer and Brand	Manganese		Manganese Sulfate		Moisture
	Found	Guaranteed	Found	Guaranteed	
Eastern States Farmers' Exchange					
Manganese Sulfate	27.70	25.47	76.14	70.00	.21
Tennessee Corporation					
Teecee Manganese Sulfate	21.78	21.83	59.87	60.00	1.59

Commercial Peat Products

Manufacturer and Brand	Number of Samples	Water	Organic Matter	Mineral Matter	Nitrogen	
					Found	Guaranteed
Brague, Inc.						
Hinsdale Leafmold	2	62.90	35.23	1.87	.96	.50
Florida Humus Co.						
Florida Humus	2	30.34	63.59	6.07	2.41	2.18
Highland Humus Corporation						
Highland Humus	1	76.16	13.10	10.74	.35	.30
Highland Humus	1	74.90	14.13	10.97	.34	.30

Menderth

Produced and sold by Menderth, Inc., 92 State St., Room 63, Boston, Mass.

Plant Food Elements	Found Soluble in Strong Hydrochloric Acid	Guaranteed by Fusion Method	Found by Fusion Method
Potassium oxide	1.39	3.00	3.86
Phosphoric acid	.38	.13	.42
Calcium oxide	2.12	3.00	3.07
Magnesium oxide	2.72	2.00	2.72

Note: Commercial valuation per ton not over $1.84.

Organo No. 1 (1.75–1–.5)

Manufactured by Fertilizer Sales Corporation

Plant Food Elements	Sample 1	Sample 2
Nitrogen:		
Total	2.04	2.05
Ammoniacal	none	none
Nitrate	.10	trace
Organic	1.94*a*	2.05*a*
Phosphoric acid:		
Total	2.20	2.05
Available	1.88	1.42
Potash:		
Total	1.25	.91
Water Soluble	–	.84
Calcium oxide	–	5.75
Magnesium oxide	–	1.01
Moisture	9.60	10.88
Organic Matter	–	61.81

a Activity between 65 and 70 by neutral permanganate method, the passing mark being 80.

Definitions and Interpretations Relating to Fertilizers

The following definitions and interpretations have been adopted as official by vote of the Association of Official Agricultural Chemists of North America at annual meetings held in 1936, 1937 and 1938.

An **acid-forming fertilizer** is one that is capable of increasing the residual acidity of soil.

A **non-acid-forming** fertilizer is one that is not capable of increasing the residual acidity of the soil.

Primary fertilizer components are those at present generally recognized by law as necessary to be guaranteed in fertilizers, namely: nitrogen, phosphoric acid, and potash.

Secondary fertilizer components are those other than the "primary fertilizer components" that are essential to the proper growth of plants and that may be needed by some soils. Some of these components are calcium, magnesium, sulfur, manganese, copper, zinc, and boron.

Bat manure is the dry excrement of bats.

Bat guano is partially decomposed bat manure.

The word **analysis,** as applied to fertilizer, shall designate the percentage composition of the product expressed in those terms that the law requires and permits.

Calcium nitrate (nitrate of lime) is a commercial product consisting chiefly of calcium nitrate, and it shall contain not less than fifteen per cent (15%) of nitrogen.

Ammoniated superphosphate is the product obtained when superphosphate is treated with ammonia or with a solution containing free ammonia and other forms of nitrogen dissolved therein.

Superphosphate is a commercial phosphate, the phosphoric acid (P_2O_5) content of which is due chiefly to mono-calcium phosphate. (The grade that shows the available phosphoric acid should always be used as a prefix to the name. Example: 16 per cent superphosphate.)

DIRECTORY OF MANUFACTURERS WHO REGISTERED FERTILIZERS FOR SALE IN MASSACHUSETTS IN 1939

Acme Guano Co., 416 Munsey Bldg., Baltimore, Md.
Agricultural Laboratories, Inc., Columbus, Ohio
American Agricultural Chemical Co., 285 River St., North Weymouth, Mass.
American Cyanamid Co., 30 Rockefeller Plaza, New York, N. Y.
American Potash & Chemical Corporation, Trona, Cal.
Apothecaries Hall Co., Waterbury, Conn.
Armour Fertilizer Works, 80 Eighth Ave., New York, N. Y.
Ashcraft-Wilkinson Co., Atlanta, Ga.
Atkins & Durbrow, Inc., 165 John St., New York, N. Y.
Ernest J. Bantle, Glastonbury, Conn.
Barber & Bennett, Inc., Albany, N. Y.
Barrett Co., 40 Rector St., New York, N. Y.
F. A. Bartlett Tree Expert Co., 60 Canal St., Stamford, Conn.
Belmont Gardens, 170 Brighton St., Belmont, Mass.
Berkshire Chemical Co., 92 Howard Ave., Bridgeport, Conn.
Bisbee Linseed Co., Inc., Amsterdam, N. Y.
Bisbee Linseed Co., 2100 Lincoln Liberty Bldg., Philadelphia, Penn.
L. H. Brague, Hinsdale, Mass.
Joseph Breck & Sons, 85 State St., Boston, Mass.
Buell Fertilizer Co., Exeter, N. H.
C & R Sales Co., Worcester, Mass.
Central Soya Co., Inc., Fort Wayne, Ind.
Chilean Nitrate Sales Corporation, 120 Broadway, New York, N. Y.
Clay & Son, Ltd., Stratford, London, England
Collins Seed Service Co., 131 Beverly St., Boston, Mass.
Consolidated Chemical Industries, Inc., Woburn, Mass

Consolidated Rendering Co., 178 Atlantic Ave., Boston, Mass.
Davey Tree Expert Co., Kent, Ohio
Davison Chemical Corporation, Baltimore, Md.
Dehydrating Process Co., 60 Mt. Washington Ave., Boston, Mass.
E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.
Eastern States Farmers' Exchange, Springfield, Mass.
Ellis Laboratories, Inc., 98 Greenwood Ave., Montclair, N. J.
Thomas W. Emerson Co., 215 State St., Boston, Mass.
Excell Laboratories, 2625 Indiana Ave., Chicago, Ill.
Fertilizer Sales Corporation, 617 Concord Ave., Cambridge, Mass.
Florida Humus Co., Zellwood, Florida
Foodndrink Fertilizer Co., 253 Portland St., Cambridge, Mass.
Ford Motor Co., 3674 Schaefer Road, Dearborn, Mich.
H. L. Frost & Higgins Co., 20 Mill St., Arlington, Mass.
Garden Hose Spray Co., Inc., 292 Main St., Cambridge, Mass.
Glidden Co., Soya Products Division, Chicago, Ill.
Goulard & Olena, Inc., 140 Liberty St., New York, N. Y.
Thomas J. Grey Co., 16 South Market St., Boston, Mass.
Hartney-Amalia, Inc., 581 Boylston St., Boston, Mass.
Allen Hersom Co., 74 Howard Ave., New Bedford, Mass.
Gerald S. Higgins, Park Square Bldg., Boston, Mass.
Highland Humus Corporation, 50 East 42nd St., New York, N. Y.
A. H. Hoffman, Inc., Landisville, Penn.
Humphreys-Godwin Co., Memphis, Tenn.
A. W. Hunt, Weston, Mass.
Hy-Trous Co., 504 Ingraham Bldg., Miami, Florida
Independent Manufacturing Co., Wheatsheaf Lane & Aramingo Ave., Philadelphia, Penn.
International Agricultural Corporation, 38 Chauncy St., Boston, Mass.
J. W. Joynt, Lucknow, Ontario, Canada
Spencer Kellogg & Sons, Inc., 98 Delaware Ave., Buffalo, N. Y.
Kem Plant Food Corporation, 485 Madison Ave., New York, N. Y.
Gerald E. A. Leitch, 64 Oak Ridge Road, West Medford, Mass.
L. B. Lovitt & Co., Memphis, Tenn.
McClain Brothers Co., 263 Clark Bldg., Canton, Ohio
Mechling Bros. Division of General Chemical Co., 40 Rector St , New York, N. Y.
Menderth, Inc., 92 State St., Boston, Mass.
Miller Chemical & Fertilizer Corporation, 1000 South Carolina St., Baltimore, Md.
Monsanto Chemical Co., Merrimac Division, Everett Station, Boston, Mass.
Natural Guano Co., Aurora, Ill.
New England Toro Co., 1121 Washington St., West Newton, Mass.
N. V. Potash Export My., Inc., of Amsterdam, Holland, 19 West 44th St., New York, N. Y.
Norwood Brand Fertilizer Co., Park St., North Reading, Mass.
Old Deerfield Fertilizer Co., Inc., South Deerfield, Mass.
Olds & Whipple, Inc., 168 State St., Hartford, Conn.
Pacific Manure & Fertilizer Co., 108–110 Davis St., San Francisco, Cal.
Perkins Oil Co., Memphis, Tenn.
F. G. Phillips Co., 37 Circuit Road, Dedham, Mass.
Plantabbs Corp., Baltimore, Md.
Plantspur Products Co., Inc., Ridgefield, N. J.
Potash Company of America, Mercantile Trust Bldg., Baltimore, Md.
Premier Poultry Manure Division, North American Car Corporation, 327 South LaSalle St., Chicago, Ill.
Pulverized Manure Co., 503 Exchange Bldg., Union Stock Yards, Chicago, Ill.
Ramshorn Mills, Inc., West Millbury, Mass.
John Reardon & Sons Division of Wilson & Co., Inc., 51 Waverly St., Cambridge, Mass.
Rogers & Hubbard Co., Portland, Conn.
N. Roy & Son, 675 Washington St., South Attleboro, Mass.
Ruhm Phosphate & Chemical Co., Mt. Pleasant, Tenn.
F. Rynveld & Sons, Inc., 149–155 West 24th St., New York, N. Y.
Salem Chemical & Supply Co., Salem, Mass.
O. M. Scott & Sons Co., Marysville, Ohio
Sewerage Commission of the City of Milwaukee, P. O. Box 2079, Milwaukee Wis.
Soil Builders, Inc., Division of Colloidal Products of America, Inc., Orlando, Florida
Standard Wholesale Phosphate & Acid Works, Inc., 1600 Mercantile Trust Bldg., Baltimore, Md
Stockdale Fertilizer Co., Morris, Ill.
Sutton & Sons, Ltd., Reading, England
Swift & Company Fertilizer Works, 1305 Standard Oil Bldg., Baltimore, Md.
F. Sylvester & Son, 397 Proctor Ave., Revere, Mass.
Synthetic Nitrogen Products Corporation, 285 Madison Ave., New York, N. Y.
Tennessee Corporation, Lockland, Ohio
Universal Chemical Co., 106 Ontario St., Lynn, Mass.
Virginia-Carolina Chemical Corporation, Carteret, N. J.
Walker-Gordon Laboratory, Inc., Plainsboro, N. J.
C. P. Washburn Co., Middleboro, Mass.
Winslow Nurseries, 1808 Great Plain Ave., Needham, Mass.
Thomas Wood & Sons, Inc., 12–14 Midland Ave., Montclair, N. J.
Woodard Bros., Greenfield, Mass.
Woodruff Fertilizer Works, Inc., Orange, Conn.

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AGRICULTURAL EXPERIMENT STATION

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Inspection of Agricultural Lime Products

By H. D. Haskins

This is the twenty-eighth report on the inspection of agricultural lime products in Massachusetts. It gives the composition of the various products which have been sold in the State during the year.

Massachusetts State College
Amherst, Mass.

INSPECTION OF AGRICULTURAL LIME PRODUCTS FOR THE SEASON OF 1939

By H. D. Haskins, Official Chemist [1]

Manufacturers and Brands

During 1939, 23 firms registered for sale in Massachusetts 50 brands of lime products, manufactured and sold for neutralizing acid soils, one brand of gypsum, and one brand of agricultural talc. The products are grouped as follows:

Hydrated or slaked lime	25
Pulverized and ground limestone	23
Oyster shell lime	1
Lime ashes	1
Total	50
Gypsum	1
Talc	1

The analytical results which appear in this bulletin represent, with but few exceptions where samples were furnished us by request, officially drawn samples secured by the same sampling agents who drew the samples of commercial fertilizer which served for the inspection of that commodity; the samples therefore came from every section of the State and are, we believe, representative of the lime products sold in Massachusetts as soil amendments.

We were not successful in securing a sample of Solvay Pulverized limestone, registered by the Solvay Process Co., Syracuse, N. Y. With this exception all of the lime products registered in Massachusetts were analyzed and results appear in the tables following.

Variations and Deficiencies Found in the Composition of Lime Products

Of the lime products effective in neutralizing soil acidity, about 85 per cent of those analyzed fully met the minimum guarantee; of the 23 ground limestone products, 5 showed deficiencies. Some of the deficiencies were not of a serious nature as the companion ingredient was present in sufficient excess to more than make up the full neutralizing value of the product as based on the stated guarantee. The same may be said of the hydrated lime products where only four out of 25 brands, about 16 per cent, showed any deficiencies whatever. The tables of analyses will show the extent of variations from the guaranteed composition.

Tonnage of Lime Products Sold in Massachusetts

Early in 1939 an effort was made to secure reliable statistics as to the tonnage of lime products used in Massachusetts during 1938. Data were secured both from lime firms producing and selling lime for agricultural purposes, and from fertilizer manufacturers who use dolomitic ground limestone in fertilizer mixtures

[1] Assisted by H. Robert DeRose, J. W. Kuzmeski, Albert F. Spelman and Leo V. Crowley, Assistant Chemists; J. T. Howard, L. A. Graves and C. L. Whiting, Sampling Agents; George E. Taylor, Laboratory Assistant, Cora B. Grover, Clerk.

in order to make mixtures more neutral in reaction. Of the following tonnage reported, about 84 per cent was sold by the lime manufacturers and 16 per cent by the fertilizer people.

	Tons Sold
Pulverized and ground limestone	47,343
Hydrated line	5,163
Miscellaneous (caustic lime, lime ashes, and shell lime)	385
Total	52,891

Explanation of Tables of Analyses

Table I, "Proportion of total oxides as carbonates." The data furnished in this column are calculated from an actual determination of carbon dioxide (CO_2). Calcium or magnesium not in the form of carbonate is present either as hydrated lime (water- or air-slaked), as burned lime (caustic or unslaked), or as basic silicate. All of the products listed in this table have at some time been burned, and the proportion of oxides present as carbonates indicates to what extent the product has absorbed carbonic acid from the air.

Tables II and III, "Carbonates of calcium and magnesium." The figures in this column are exclusive of the small amounts of calcium and magnesium combined as basic silicates; these are readily soluble in mineral acid solutions but obviously should not be classed as carbonates.

Under "Mechanical analysis" the figures represent in round numbers the percentage of product that would pass the various meshed sieves mentioned.

The limestone products have been published in two groups or grades (see tables II and III) according to fineness of grinding and to conform to definitions voted by the Association of Official Agricultural Chemists at their 1936 meeting.

Tables I and II and III, "Neutralizing value expressed in terms of calcium oxide" represents the acid neutralizing value of both the magnesium and the calcium. The figures in the "percent" column are obtained by a direct titration with standard acid. The "pounds in one ton" are secured by multiplying the figures in the "percent" column by 20.

"Insoluble matter" represents material which is insoluble in dilute hydrochloric acid to which a few drops of nitric acid have been added.

The figures in parenthesis following the brand name show the number of samples collected and analyzed.

Table I. Hydrated or Slaked Lime

Name of Manufacturer and Brand	Calcium Oxide (CaO)		Magnesium Oxide (MgO)		Proportion of Total Oxides as Carbonates	Neutralizing Value Expressed in Terms of Calcium Oxide		Insoluble Matter
	Found	Guaranteed	Found	Guaranteed		Per Cent	Pounds in One Ton	
Brewer & Co., Inc., 45 Arctic St., Worcester, Mass. *(a)*								
Green Mountain Handy Hydrated Lime (2)	69.69	65.00	1.96	1.00	1/9	72.06	1,441	1.60
Sure Crop Agricultural Hydrated Lime (1)	68.56	65.00	1.38	1.00	1/7	70.38	1,408	3.60
Producto Agricultural Lime (1)	69.35	60.00	5.94	1.00	1/19	77.81	1,556	2.13
Snow Fluff Agricultural Hydrate (1)	69.69	70.00	4.20	5.00	1/44	76.13	1,523	1.93
Producto Lime Kiln Ashes (1)	43.50	42.00	4.39	2.00	2/3	48.23	965*b*	3.18
Eastern States Farmers' Exchange, Springfield, Mass.								
Eastern States Magnesian Hydrated Lime (3)	47.32	47.00	31.80	31.00	1/16	91.41	1,828	.58
Eastern States Land Lime (2)	41.42	35.00	25.20	25.00	1/3	76.27	1,525	.93
Harris Lime Co., Saylesville, R. I. *(c)*								
Harris High Magnesia Agricultural Hydrated Lime (2)	51.93	50.00	22.82	22.00	1/33	83.98	1,680	6.08
A. H. Hoffman, Inc., Landisville, Penn.								
Hoffman's Hydrated Lime (3)	68.76	70.00	1.74	1.50	1/8	70.38	1,408	2.55
Hoosac Valley Lime Co., Inc., Adams, Mass.								
Hoosac Agricultural Hydrated Lime (1)	71.43	65.00	1.74	.50	1/11	73.74	1,475	.90
Adams Land Lime (1)	60.19	60.00	2.03	.50	1/5	62.81	1,256	4.65
Kelley Island Lime & Transport Co., 1122 Leader Bldg., Cleveland, Ohio								
Tiger All-Purpose Hydrated Lime (2)	48.61	47.12	31.80	34.14	1/52	92.81	1,856	.03
Lawrence Portland Cement Co., Thomaston, Maine								
Dragon "Mainrok" Land Lime (3)	70.47	60.00	1.63	2.00	1/10	72.90	1,458	.78
Lee Lime Corporation, Lee, Mass.								
Lee Lime Corporation Land Lime (2)	39.34	35.00	26.52	25.00	2/5	76.27	1,525	1.05
Lee Lime Corporation Agricultural Hydrated Lime (3)	47.43	47.00	32.60	31.00	1/17	92.39	1,848	.40

H. E. Millard, Annville, Penn.								
Sweet-Arrow Hydrated Lime (1)	71.82	70.00	2.10	1.00	1/21	73.74	1,475	1.28
Clifford L. Miller, West Stockbridge, Mass.								
Monarque Agricultural Hydrated Lime (2)	66.20	60.00	7.46	4.00	1/22	76.55	1,531	2.13
New England Lime Co., Adams, Mass. (*d*)								
Nelco Agricultural Hydrated Lime (Adams) (1)	73.23	70.00	.94	.50	1/42	74.58	1,492	.58
Nelco Agricultural Hydrated Lime (Canaan, Conn.) (1)	47.43	47.00	31.72	31.00	1/9	91.97	1,839	1.70
Nelco Land Lime (Canaan, Conn.) (1)	42.37	35.00	28.32	25.00	1/8	81.32	1,626	2.63
Rockland-Rockport Lime Co., Inc., Rockland, Maine								
Sanilime (2)	71.82	70.00	1.45	.20	1/7	73.74	1,475	.05
R-R Land Lime, Special High Magnesia (2)	47.66	40.00	25.00	22.00	1/16	80.62	1,612	7.53
R-R Land Lime Grade C (2)	62.83	60.00	4.04	.50	1/4	68.84	1,377	4.83
Rockland Agricultural Hydrate (1)	49.46	45.00	23.04	23.00	1/11	81.74	1,635	2.53
United States Gypsum Co., 300 West Adams St., Chicago, Ill. (*e*)								
USG Red Top Hydrated Lime (1)	73.06	70.00	1.09	none	1/17	74.59	1,492	.23
USG Land Lime (2)	72.05	60.00	1.23	none	1/39	73.74	1,475	.33
USG Agricultural Hydrated Lime (2)	71.94	70.00	1.38	none	1/17	73.74	1,475	.33

a Plant at Winooski, Vt.
b The sample tested 2.25% phosphoric acid and 5.01% potassium oxide.
c Shipping point Berkeley, R. I.
d Plants at Adams, Mass., and Canaan, Conn.
e Plants at Farnams, Mass., and Falls Village, Conn.

Table II. Pulverized Limestone (Finely Ground Limestone)

Name of Manufacturer and Brand	Calcium Oxide (CaO)		Magnesium Oxide (MgO)		Carbonates of Calcium and Magnesium		Neutralizing Value Expressed in Terms of Calcium Oxide		Insoluble Matter	Mechanical Analysis (Per Cent)			
	Found	Guaranteed	Found	Guaranteed	Found	Guaranteed	Per Cent	Pounds In One Ton		Finer than 100-mesh	Between 100 and 80-mesh	Between 80 and 40-mesh	Between 40 and 10-mesh
Eastern States Farmers' Exchange, Springfield, Mass. (a)													
Eastern States Magnesian Limestone (3)	31.47	29.00	21.22	20.00	95.43	93.50	59.37	1,187	2.13	81.35	3.46	12.74	2.45
Grangers Manufacturing Co., West Stockbridge, Mass.													
Grangers Agricultural Limestone (1)	43.11	34.00	6.74	6.00	88.43	90.00	51.87	1,037	10.28	88.40	1.90	8.71	.99
Grangers Agricultural Limestone (2)	47.43	30.00	3.77	1.00	91.23	90.00	51.80	1,036	8.10	83.44	3.08	11.63	1.85
Harris Lime Co., Saylesville, R. I.													
Harris Agricultural Ground Limestone (2)	37.09	34.00	15.58	14.00	94.84	89.96	57.20	1,144	3.38	76.13	2.61	11.54	9.72
Harris Agricultural Ground Limestone (1)	31.36	34.00	18.61	14.00	91.67	89.96	56.08	1,122	6.70	76.84	2.65	10.23	10.28
Hoosac Marble Co., North Adams, Mass.													
Agricultural Limestone (1)	51.87	53.00	.62	1.00	93.68	95.25	52.50	1,050	6.18	93.57	.90	5.26	.27
Hoosac Valley Lime Co., Inc., Adams, Mass.													
Hoosac Agricultural Limestone (1)	53.95	50.00	.67	.50	95.35	90.00	54.61	1,092	3.36	84.56	3.80	9.97	1.67
Lawrence Portland Cement Co., Thomaston, Maine													
Dragon "Mainrok" Finely Pulverized Dolomite Magnesian Agricultural Limestone (1)	31.19	25.00	18.16	15.00	85.36	70.00	53.42	1,068	10.60	95.44	1.03	3.45	.08
Dragon "Mainrok" Finely Pulverized High Calcium Agricultural Limestone (1)	52.83	50.00	1.01	.20	96.12	95.00	53.35	1,067	3.70	88.16	3.00	8.17	.67
Lee Lime Corporation, Lee, Mass.													
Lee Lime Corp. Agricultural Pulverized Limestone (1)	31.47	30.00	21.44	20.00	96.98	93.00	60.29	1,206	1.10	80.99	2.77	13.63	2.61
Lee Lime Corp. Agricultural Pulverized Limestone (19)	30.74	30.00	21.59	20.00	96.43	93.00	58.88	1,178	1.78	78.06	4.25	14.91	2.78

Lee Lime Corp. Agricultural Pulverized Limestone (1)	30.91	30.00	21.50	20.00	98.07	93.00	59.58	1,192	.95	78.90	3.93	14.71	2.46
Lee Lime Corp. Agricultural Pulverized Limestone (1)	30.64	30.00	21.37	20.00	97.68	93.00	59.30	1,186	1.50	82.63	2.71	12.92	1.74
Lee Lime Corp. Agricultural Pulverized Limestone (1)	30.80	30.00	21.22	20.00	98.59	93.00	59.59	1,192	.97	81.00	3.09	13.41	2.50
Lee Lime Corp. Agricultural Pulverized Limestone (1)	30.57	30.00	21.37	20.00	97.78	93.00	59.10	1,182	1.50	88.97	2.22	7.71	1.10
Tobey Pulverized Limestone (3)	37.88	35.00	12.74	10.00	91.84	90.00	53.91	1,078	6.98	88.38	1.28	5.91	4.43
Tobey Pulverized Limestone (1)	39.37	35.00	11.59	10.00	91.99	90.00	54.18	1,084	6.73	92.73	.59	4.83	1.85
Tobey Pulverized Limestone (1)	38.75	35.00	11.85	10.00	92.47	90.00	54.18	1,084	6.83	89.48	1.41	5.99	3.12
Tobey Pulverized Limestone (1)	38.42	35.00	11.81	10.00	93.26	90.00	54.12	1,082	6.64	94.02	.86	3.99	1.13
Limestone Products Corporation of America, Newton, N. J.													
Lime Crest Brand Pulverized Limestone (2)	48.95	42.00	4.35	2.00	94.28	90.00	53.63	1,073	4.60	88.91	2.99	6.54	1.56
Lime Crest Brand Pulverized Limestone (1)	49.01	42.00	4.49	2.00	92.10	90.00	52.54	1,051	5.58	88.35	3.05	7.67	.93
New England Lime Co., Adams, Mass. (*b*)													
Nelco Agricultural Limestone (Adams) (2)	54.29	50.00	.94	none	96.82	89.23	55.20	1,104	2.15	95.99	1.74	2.22	.05
Nelco Agricultural Ground Limestone (Canaan, Conn.) (3)	31.58	30.00	21.16	20.00	95.80	95.37	59.06	1,181	1.85	78.51	4.02	13.81	3.66
Rockland-Rockport Lime Co., Inc., Rockland, Maine													
R-R Ground Limestone, Grade C (2)	52.21	50.00	2.50	3.00	96.91	92.00	54.64	1,093	2.28	86.25	2.97	8.33	2.45
R-R Ground Limestone, Grade M (2)	34.39	30.00	18.32	17.00	96.69	94.00	58.18	1,164	1.83	83.89	3.49	9.83	2.79
United States Gypsum Co., 300 West Adams St., Chicago, Ill. (*c*)													
USG Agricultural Limestone (2)	51.90	53.20	1.13	.50	93.19	96.00	52.58	1,052	5.95	84.04	3.20	10.70	2.06
USG Agricultural Limestone (1)	30.80	30.00	20.44	20.00	94.47	95.00	58.15	1,163	3.88	76.04	2.70	15.62	5.64
USG Agricultural Limestone (1)	30.23	30.00	20.36	20.00	91.59	95.00	56.00	1,120	5.95	75.10	3.56	16.36	4.98
USG Agricultural Limestone (1)	52.73	53.20	.72	.50	95.60	96.00	53.98	1,080	3.80	76.33	3.86	15.67	4.14
USG Agricultural Limestone (1)	52.51	53.20	.72	.50	95.22	96.00	53.76	1,075	4.25	84.00	2.68	11.67	1.65
USG Agricultural Limestone (1)	53.83	53.20	.74	.50	94.62	96.00	54.33	1,087	3.70	79.66	4.86	13.54	1.94

a Plant at Falls Village, Conn.
b Plants at Adams, Mass., and Canaan, Conn.
c Plants at Farnams, Mass., and Falls Village, Conn.

Table III. Ground Limestone (Coarsely Ground Limestone)

Name of Manufacturer and Brand	Calcium Oxide (CaO)		Magnesium Oxide (MgO)		Carbonates of Calcium and Magnesium		Neutralizing Value Expressed in Terms of Calcium Oxide		Insoluble Matter	Mechanical Analysis (Per Cent)			
	Found	Guaranteed	Found	Guaranteed	Found	Guaranteed	Per Cent	Pounds In One Ton		Finer than 100-mesh	Between 100 and 80-mesh	Between 80 and 40-mesh	Between 40 and 10-mesh
Bluepoints Co., Inc., Rhode Island Oyster Farms Co., East Providence, R. I.													
Sealshipt Brand Oyster Shell Dust (1)	47.66	45.00	.94	.75	87.02	77.00	48.51	970	9.43	58.68	2.98	31.08	7.26
Bolton Lime Works, Bolton, Mass.													
Ground Limestone (1)	28.32	27.56	17.68	16.77	81.26	84.25	48.09	962	15.75	46.03	3.10	23.83	27.04
Conklin Lime Co., Inc., Canaan, Conn.													
High Magnesium Agricultural Ground Limestone (1)	30.30	30.00	20.28	20.00	94.31	90.00	56.99	1,140	4.61	59.13	5.72	32.06	3.09
High Magnesium Agricultural Ground Limestone (1)	30.49	30.00	20.50	20.00	94.69	90.00	57.62	1,152	4.00	40.76	11.40	44.25	3.59
Harris Lime Co., Saylesville, R. I.													
Harris Agricultural Ground Limestone (1)	41.99	34.00	9.97	14.00	94.65	89.96	55.59	1,112	4.78	63.76	5.68	15.60	14.96
Harris Agricultural Ground Limestone (1)	32.49	34.00	16.68	14.00	90.10	89.96	54.46	1,089	8.58	72.48	4.89	12.07	10.56
Hoosac Valley Lime Co., Inc., Adams, Mass.													
Hoosac Agricultural Limestone (2)	52.49	50.00	.87	.50	93.73	90.00	53.03	1,061	5.43	73.63	4.10	15.83	6.44
Lee Lime Corporation, Lee, Mass.													
Lee Lime Corp. Agricultural Pulverized Limestone (1)	31.19	30.00	21.24	20.00	96.42	93.00	59.02	1,180	1.78	72.60	3.33	12.45	11.62
Massachusetts Lime Works, 20 James St., Medford, Mass.													
Indiana Ground Limestone (1)	54.40	53.00	1.01	.50	97.23	95.00	55.31	1,106	1.83	52.27	5.46	38.15	4.12
Indiana Ground Limestone (1)	52.38	53.00	.90	.50	94.63	95.00	53.28	1,066	4.98	53.91	3.02	35.54	7.53

Clifford L. Miller, West Stockbridge, Mass.													
Monarque Agricultural Limestone (1) . . .	40.07	39.00	11.38	11.00	91.88	90.00	54.54	1,091	6.48	67.58	2.78	12.06	17.58
Monarque Agricultural Dolomite (3) . . .	30.40	28.00	17.80	16.00	88.30	83.00	53.77	1,075	10.13	70.98	3.24	11.36	14.42
D. U. Smith & Brother, Ashley Falls, Mass.													
Ashley White Dolomite—Agricultural Limestone (2) . . .	31.53	30.00	21.00	21.00	99.16	98.00	60.39	1,208	.35	51.69	4.63	29.35	14.33
Ashley White Dolomite—Agricultural Limestone (2) . . .	30.48	30.00	21.18	21.00	97.69	98.00	58.95	1,179	1.76	47.20	4.76	31.81	16.23
Ashley White Dolomite—Agricultural Limestone (1) . . .	30.91	30.00	22.02	21.00	95.77	98.00	59.30	1,186	1.55	44.56	4.07	32.38	18.99
United States Gypsum Co., 300 West Adams St., Chicago, Ill.													
USG Agricultural Limestone (1) . . .	31.13	29.00	20.50	20.00	89.85	93.50	58.15	1,163	5.95	74.50	2.10	17.78	5.62
USG Agricultural Limestone (1) . . .	30.40	30.00	20.11	20.00	94.27	95.00	57.90	1,158	4.70	69.99	3.87	21.93	4.21
USG Agricultural Limestone (1) . . .	30.29	30.00	20.52	20.00	90.61	95.00	56.64	1,133	6.35	71.76	6.20	17.56	4.48

Table IV. Gypsum or Land Plaster

Name of Manufacturer and Brand	Calcium Oxide (CaO)		Calcium Sulfate ($CaSO_4$)		Calcium and Magnesium Carbonates	Moisture
	Found	Guaranteed	Found	Guaranteed		
United States Gypsum Co., 300 West Adams St., Chicago, Ill.						
Ben Franklin Agricultural Gypsum (3)	32.37	30.00	76.86	64.50	2.46	18.03
Ben Franklin Agricultural Gypsum (1)	32.43	30.00	74.69	64.50	3.78	14.40

L. A. Howard and G. D. Howard, Proctorsville, Vermont
Howard's Agricultural Talc

	By Fusion Per Cent	Soluble in strong Hydrochloric-Nitric Acid Per Cent	Guarantee Soluble in Acids Per Cent
Magnesium oxide	29.84	7.76	13.00
Calcium oxide	1.52	.90	—
Iron and aluminum oxides	7.10	2.40	—
Carbonic acid	—	7.90	—

Material insoluble in acids 80.53%.

Neutralizing value in terms of calcium oxide 9.81.

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DR.WALTER S.RITCHIE
GOESSMANN LAB.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

CONTROL SERIES BULLETIN NO. 102 DECEMBER, 1939

Seed Inspection

By F. A. McLaughlin

This report, the twelfth in seed control service, is a record of work delegated to the Massachusetts Agricultural Experiment Station during 1939, by authority of Chapter 94 as amended by Chapter 288 of the Acts of 1937 and Chapter 363 of the Acts of 1938.

MASSACHUSETTS STATE COLLEGE

AMHERST, MASS.

ANNOUNCEMENT

The Seed Testing Laboratory will allow ten units of work free of charge, during any calendar year, to any resident firm or citizen of Massachusetts.

Units are rated as follows:	Units
Purity analysis (red clover, timothy, etc.)	1
Purity analysis (bluegrass, orchard grass, etc.)	2
Purity analysis of a mixture of seeds (depending upon the number of kinds in the mixture)	4–10
Examination for noxious weeds (sample of 4 oz. or less)	2
Identification of seed or plant	1
Cleaning tobacco seed (4 oz. or less)	2
Germination test (4 x 100 seeds of any seed not chaffy or requiring purity analysis)	1
Germination test (soil, 2 x 100 seeds)	1
Germination test (chaffy grasses or seeds requiring purity analysis)	2

Fees for work in excess of the ten free units allowed to a citizen or resident firm of Massachusetts are as follows:

Germination test of all crop seeds except grasses	$0.25
Germination test of timothy	.25
Germination test of all other grasses	.50
Purity analysis of cereals	.50
Purity analysis of timothy	.75
Purity analysis of all other grasses	1.00
Purity analysis of all other crop seeds	.75
Purity analysis of mixtures of not more than 2 kinds of agricultural seeds	1.00
Purity analysis of special mixtures, including lawn grasses and pasture mixtures — a charge sufficient to cover the actual cost of working the sample, depending entirely upon the character of the sample. Minimum charge	1.25

In no case will the final report be rendered until all fees are paid.

The minimum weights of samples to be submitted for analysis are:

a. Two ounces of grass seed, white or alsike clover, or seeds not larger than these.

b. Five ounces of red or crimson clover, alfalfa, ryegrasses, millet, rape, or seeds of similar size.

c. One pound of cereal, vetches, or seeds of similar or larger size.

The minimum number of seed of any one kind to be submitted for a germination test is 400.

SEED INSPECTION

By F. A. McLaughlin[1]

MASSACHUSETTS VEGETABLE SEED STANDARDS FOR 1940

Section 261D of the Seed Law requires that a set of standards for germination of vegetable seeds be determined each year by the Director of the Massachusetts Agricultural Experiment Station and approved by the Commissioner of Agriculture. The following set of standards for 1940 has been so determined and approved:

KIND OF SEED	GERMINATION STANDARD %	KIND OF SEED	GERMINATION STANDARD %
Artichoke	60	Kohl Rabi	75
Asparagus (including hard seed)	70	Leek	60
Beans		Lettuce	80
Limas	70	Melons	
Other Beans	80	Muskmelon	75
Beets	65	Watermelon	70
Broccoli	75	Mustard	75
Brussels Sprouts	70	Okra	50
Cabbage	75	Onions	70
Carrot	55	Parsley	60
Cauliflower	75	Parsnip	60
Celeriac	55	Peas	80
Celery	55	Peppers	55
Chard, Swiss	65	Pumpkin	75
Chicory	65	Radish	75
Citron	65	Rhubarb	60
Collards	80	Rutabaga	75
Corn, Sweet	75	Salsify	75
Cress, Upland	40	Sorrel	60
Cress, Water	25	Spinach	
Cucumber	80	Common	60
Dandelion	45	New Zealand	40
Egg Plant	60	Squash	75
Endive	70	Tomato	75
Fetticus (Corn Salad)	70	Tomato, Husk	50
Kale	75	Turnip	80

The above set of standards corresponds with that adopted by the United States Department of Agriculture for administration of the Federal Seed Act. Changes which have been made in the Massachusetts Standard for 1940 include:

Artichoke, Upland Cress, Fetticus, Mustard, Rhubarb, Sorrel, New Zealand Spinach, and Husk Tomato have been added to the 1939 list; and Curled Cress, Dill, Sage, Summer Savory, Sweet Basil, Sweet Fennel, Sweet Marjoram, and Thyme have been omitted.

Germination Standards are raised from 65 to 70% for Asparagus; from 75 to 80% for Collards; and from 70 to 75% for Salsify.

Germination Standards are lowered from 80 to 70% for Small-seeded Limas; from 40 to 25% for Water Cress; from 55 to 45% for Dandelion; from 80 to 75% for Muskmelon; from 75 to 70% for Onions; from 60 to 55% for Peppers; from 80 to 75% for Radish; and from 80 to 75% for Tomato.

In the enforcement of the law, no tolerances will be allowed below the minimum standards adopted.

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[1]Assisted by Miss Jessie L. Anderson, Technical Assistant.

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS

From December 1, 1938, to December 1, 1939, the Seed Laboratory received and worked 2663 samples of seed, of which 1003 were collected by the State Commissioner of Agriculture and 1661 were sent in by seedsmen, farmers, and various state institutions. An additional lot of 224 samples of flower seeds, for field tests only, was also received from the State Commissioner of Agriculture.

Classification of these samples with the total number of laboratory tests involved is shown in the following summary. It will be noted that the total number of tests required for the 2663 samples was 3763; 857 for purity and 2906 for germination.

Number of Samples		NUMBER OF TESTS Purity	Germination
544	Field Crops for Purity and Germination	644	644
14	Field Crops for Purity Only	14	—
123	Field Crops for Germination Only	—	123
103	Lawn and other types of Mixtures for Purity	103	456
	Germinations involving 456 ingredients		
96	Lawn Mixtures for Purity Only	96	—
1501	Vegetable Seeds for Germination Only	—	1501
37	Flower Seeds for Germination Only	—	37
22	Tree Seeds for Germination Only	—	22
123	Tobacco Seeds for Germination Only	—	123
2663	Totals	857	2906

Field tests to determine trueness to type were conducted in cooperation with the Departments of Vegetable Gardening, Floriculture, and Agronomy, which tested respectively 193 samples of Vegetable seeds, 224 samples of Flower seeds, 20 samples of Oats and 73 samples of Corn. All samples for these tests were collected and submitted by the State Commissioner of Agriculture, with the exception of 4 samples of Oats, which were sent in by seedsmen. Results of field tests, except for Oats which were not recorded because of unsatisfactory soil conditions, are shown on Pages 83-103.

The Seed Laboratory cleaned 7 lots of Onion seed and 73 lots of Tobacco seed for Connecticut Valley farmers.

Explanation of Tables

In these tables the seeds are listed in alphabetical order by groups, each group containing only those seeds, the sale of which is regulated by a definite section of the Massachusetts Seed Law. Section 261-A of the Acts and Resolves of 1937, and 1938, Chapters 288 and 363, defines the group from Alfalfa to Wheat, inclusive; Section 261-B, Mixtures; Section 261-C, Special Mixtures; and Section 261-D, Vegetables.

The number preceding each analysis is for identification and reference. The line to the right of the letter "L" gives information copied from the label; that to the right of "F," what was found in the laboratory analysis. Attention is called to certain irregularities by the following:

The asterisk (*) shows violation in labeling.

Boldface type indicates low purity, low germination, excessive weed seed, percentage of ingredient found deficient after adding proper tolerance, or excessive inert material, depending upon the column in which it is found.

Other deficiencies are enumerated as follows:

(1) Noxious weeds not declared but found excessive.

(2) Old seed (as shown by given date or by correspondence with the wholesaler).

(3) Ingredient found, but not declared.

(4) Ingredient declared, but not found.

(5) Ingredient declared, but percentage found excessive after adding proper tolerance to amount declared.

(6) Term not specific.

(7) Wholesaler claims this seed not sold by him, or at least not during current year.

All lots of seed included in this report were tested according to the Rules for Seed Testing adopted by the Association of Official Seed Analysts.

"Tolerance" is applied to both purity and germination, except in those tables which list seeds falling under sections of the law not requiring purity or germination on the label. For the application of "Purity Tolerance," the sample is considered as made up of two component parts: (1) the component being considered, and (2) the balance of the sample. The tolerance in percentage allowed for each component shall be two-tenths of one percent (0.2%) plus twenty percent (20%) of the lesser of the two parts. "Germination Tolerance" has been applied between a given germination and the result of the germination test as follows:

GIVEN GERMINATION (PERCENT)	TOLERANCE (PERCENT(
96 or over	5
90 or over, but less than 96	6
80 or over, but less than 90	7
70 or over, but less than 80	8
60 or over, but less than 70	9
Less than 60	10

No tolerance is allowed for vegetable seed below the minimum germination standards adopted.

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test
	ALFALFA							
	ARTHUR R. CONE, Buffalo, N. Y.							
873	Grimm Alfalfa, No. 28-76 (1)	L.	99.26	.06		–	80-10	1/1938
	Sunshine Feed Store, Ayer	F.	98.29	.02	.17	1.52	75-8	8/1939
	8 English Plantain per oz. found							
	ALBERT DICKINSON CO., Chicago, Ill.							
1114	Common Alfalfa, No. 28184	L.	99.32	.42	—	—	78-15	5/1933
	O. B. Parks Co., Westfield	F.	99.26	.43	.14	.17	64-3	8/1939
	EASTERN STATES FARMERS EXCHANGE, Springfield, Mass.							
851	Grimm Alfalfa	L.	99.40	.20	.40	—	60-30	12/1938
	Eastern States Farmers' Exchange, Brockton	F.	99.88	.06	.02	.04	91-9	8/1939
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.							
912	Blue Tag, No. 1679	L.	96.40	.23	.37	Trace	90-2	2/1939
	Joseph Harris Co., Inc., Cambridge	F.	99.42	.24	.34	None	89	8/1939
	WM. G. SCARLET & CO., Baltimore, Md.							
415	Grimm, No. 446	L.	99.00	.55	—	—	75-15	3/1937
	C. P. Washburn Co., Middleboro	F.	99.02	.23	.49	.26	81-3	8/1939
	STANFORD SEED CO., Buffalo, N. Y.							
945	Grimm Alfalfa Fancy Idaho, No. 4260	L.	99.74	.06	—	—	75-17	3/1939
	W. N. Potter Grain Co., Greenfield	F.	99.52	.10	.14	.24	75-16	8/1939
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
648	Grimm Alfalfa, Affidavit No. 2239	L.	99.54	.20	—	—	80-10	3/1939
	Farmer's Feed & Supply Co., Amesbury	F.	99.32	.07	.14	.47	96-1	8/1939
830	Grimm Alfalfa, Affidavit Idaho, No. 2231	L.	99.64	.13	—	—	80-10	1/1939
	H. K. Webster Co., Lawrence	F.	99.60	.04	.29	.07	75-19	8/1939
887	Blue Tag, No. 2228	L.	99.70	.06	—	—	80-10	1/1939
	Farm Service Co., Fitchburg	F.	99.56	.15	.22	.07	86-8	8/1939
	BARLEY							
	BARBER & BENNETT, INC., Albany, N. Y.							
975	Six Row, No. 342 (6)	L.	99.00	*	—	—	96	4/1939
	Hoosac Valley Coal & Grain Co., Adams	F.	99.14	.04	.36	.46	97	8/1939

	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
897	Six Row Wisconsin, No. 38	L.	98.00	.10	—	—	92	3/1939
	United Cooperative Farmers' Exchange, Fitchburg	F.	99.60	.06	.22	.12	99	8/1939
	BENT GRASS							
	THE BELT SEED CO., Baltimore, Md.							
1091	So. German Creeping Bent, No. 3183	L.	76.00	.30	—	—	85	12/1938
	Collins Seed Service Co., Boston	F.	76.14	.32	23.38	.16	86	7/1939
	ARTHUR R. CONE, Buffalo, N. Y.							
721	Astoria, 100-234	L.	99.20	.10	—	—	90	3/1939
	Sunshine Feed Store, Bridgewater	F.	99.46	.03	.47	.04	90	7/1939
	ALBERT DICKINSON CO., Chicago, Ill.							
892	Astoria, No. 034309 (2)	L.	98.20	.10	1.70	—	90	2/1937
	Fitchburg Hardware Co., Fitchburg	F.	95.66	.19	3.89	.26	90	7/1939
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.							
937	Colonial R. 1	L.	98.50	.15	1.20	.15	90	12/1937
	Greenfield Farmers' Cooperative Exchange, Greenfield	F.	98.52	.03	1.37	.08	90	7/1939
	ENGBRETSON SEED CO., Astoria, Oregon							
1080	Blue Tag Seaside S B 6	L.	98.08	*	1.92	—	92.25	12/1938
	Collins Seed Service Co., Boston	F.	98.60	.02	1.38	—	94	7/1939
1081	Blue Tag Astoria	L.	98.50	.01	1.13	—	89	**
	Collins Seed Service Co., Boston	F.	98.59	.14	1.29	—	97	7/1939
	JOHN D. LYON SEED CO., Belmont, Mass.							
1029	Astoria	L.	99.65	.05	.30	—	90	1/1939
	John D. Lyon Seed Co., Belmont	F.	99.85	.03	.12	—	96	7/1939
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
671	Rhode Island, No. 4640	L.	98.16	.02	—	—	90	2/1938
	Monroe Seed Market, Attleboro	F.	99.04	.14	.82	—	92	7/1939
	BLUEGRASS							
	COLLINS SEED SERVICE CO., Boston, Mass.							
1090	Canada	L.	85.00	.50	14.50	—	85	**
	Collins Seed Service, Boston	F.	86.64	.18	11.98	1.20	85	6/21/39
	ARTHUR R. CONE, Buffalo, N. Y.							
717	Kentucky, Lot No. 34-59	L.	90.30	.30	—	—	89	1/1939
	Sunshine Feed Store, Bridgewater	F.	88.23	.09	11.59	.09	82	6/1939

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test
	BLUEGRASS—Concluded							
	ALBERT DICKINSON CO., Chicago, Ill.							
1087	Kentucky, Lot 0 32734	L.	86.00	.20	13.80	- -	85	10/1937
	The Collins Seed Service, Boston	F.	90.66	.10	9.14	.10	80	6/1939
	THOMAS W. EMERSON CO., Boston, Mass.							
261	Bay State (Kentucky)	L.	90.00	*	—	—	85	* 1938
	Eastern Grain Co., Bridgewater	F.	84.40	.57	15.03	—	76	5/1939
1148	Canada	L.	86.00	.40	—	—	85	1/1939
	Frank Howard, Inc., Pittsfield	F.	81.21	.29	17.42	1.08	81	7/1939
	JOHN D. LYON SEED CO., Belmont, Mass.							
1032	Kentucky	L.	99.18	.10	.62	.10	91	10/1938
	John D. Lyon Seed Co., Belmont	F.	98.05	.19	1.76	—	95	6/1939
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
133	Fancy, Lot No. 3672 (Kentucky) (1)	L.	86.79	.57	—	—	83	**
	H. S. Chadbourne Co., Milford	F.	86.89	.67	12.44	—	80	5/1939
	28 English Plantain per oz. found							
378	Fancy Kentucky	L.	85.49	.19	—	—	80	5/1938
	W. K. Gilmore & Sons, Walpole	F.	89.62	.30	9.97	.11	77	5/1939
676	Kentucky, Lot No. 3672 (1)	L.	86.79	.57	—	—	83	1/1939
	Farm Service Co., Attleboro	F.	85.59	.48	13.93	-	82	6/1939
	6 English Plantain per oz. found							
754	Fancy Kentucky, Lot No. 3680	L.	88.00	.28	—		80	2/1939
	Ellison Coal & Grain Co., Haverhill	F.	91.83	.19	7.98	-	87	6/1939
	BUCKWHEAT							
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.							
1113	Selected (6)	L.	98.75	.10	.55	.60	90	12/1938
	Templeton Farmers' Coop. Association, Templeton	F.	99.98	-	.02	—	92	8/1939
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.							
909	Japanese No. 1645, N. Y. State Certified 51407	L.	99.94	—	.06	Trace	92	2/1939
	Joseph Harris Co , Inc., Cambridge	F.	99.94	—	.06	—	92	8/1939

	ROSS BROS. CO., Worcester, Mass.							
789	Japanese	L.	99.67	.02	—	—	95	2/1939
	Farm & Garden Supply Co., Uxbridge	F.	99.75	—	.25	—	95	8/1939
	ALSIKE CLOVER							
	ARTHUR R. CONE, Buffalo, N. Y.							
719	Alsike Arco 25-177	L.	99.36	.42		—	78-14	3/1939
	Sunshine Feed Store, Bridgewater	F.	99.25	.52	.09	.14	96-4	8/1939
	ALBERT DICKINSON CO., Chicago, Ill.							
649	Alsike, No. 21354	L.	98.65	.35	—	.50	80-14	3/1938
	Farmer's Grain & Supply Co., Amesbury	F.	99.15	.38	.19	.28	88-7	8/1939
	DURYEA SEED CO., INC., New York City							
918	Alsike 24478 (1)	L.	98.00	.75	—	—	80-10	8/1938
	Community Grain Co., Worcester	F.	98.54	.57	.68	.21	88-10	8/1939
	15 English Plantain per oz. found							
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.							
857	Alsike (1)	L.	98.50	.35	.65	.50	70-20	12/1938
	Eastern States Farmers' Exchange, Brockton	F.	98.97	.29	.25	.49	77-21	8/1939
	10 English Plantain per oz. found (1)							
	THOMAS W. EMERSON CO., Boston, Mass.							
235	Alsike (1)	L.	99.18	.17	—	—	78	1/1937
	Farm Service Co., No. Abington	F.	99.42	.29	.10	.19	88-2	8/1939
	30 English Plantain per oz. found (1)							
	FARM SERVICE STORES, INC., Minneapolis, Minn.							
239	Alsike	L.	98.67	.30	.06	.97	91-3	10/1937
	Farm Service Store, No. Abington	F.	97.96	1.02	.04	.98	90-6	8/1939
	JOHN D. LYON SEED CO., Belmont, Mass.							
1031	Alsike (1)	L.	94.75	.28	4.55	4.55	74-19	5/1939
	John D. Lyon Seed Co., Belmont	F.	95.15	.34	.43	4.08	84-13	8/1939
	9 English Plantain per oz. found (1)							
	WM. G. SCARLET & CO., Baltimore, Md.							
375	Alsike, No. 16710 (1)	L.	99.00	.50	—	.25	70-20	4/1938
	W. K. Gilmore & Sons, Walpole	F.	97.97	.81	.45	.77	62-16	8/1939
	22 English Plantain per oz. found (1)							
	STANFORD SEED CO., Buffalo, N. Y.							
630	Alsike, No. 7248 (1)	L.	98.00	.63	—	—	84.50-12	3/1939
	Ware Grain Co., Ware	F.	98.32	.24	.35	1.09	85-12	8/1939
	10 English Plantain and 3 Canada Thistle per oz. found (1)							

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test
	ALSIKE CLOVER—Concluded							
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
257	Alsike, Pan American, No. 1525 (1)	L.	98.00	.18	—	—	88–8	**
	Ryder Grain Co., East Bridgewater	F.	97.21	.34	.30	2.15	93–6	8/1939
	14 English Plantain per oz. found (1)							
710	Alsike, Pan American, No. 1546 (1)	L.	98.20	.40	—	—	90	3/1939
	Stanley Wood Grain Co., Taunton	F.	97.99	.47	.56	.98	90–8	8/1939
	8 English Plantain per oz. found (1)							
	LADINO CLOVER							
	ARTHUR R. CONE, Buffalo, N. Y.							
872	Ladino, 100-141 (1)	L.	99.33	.17	—	—	60–28	1/1938
	Sunshine Feed Store, Ayer	F.	99.23	.08	.65	.04	63–30	8/1939
	15 English Plantain per oz. found (1)							
	CRAVER-DICKINSON SEED CO., Buffalo, N. Y.							
1147	Ladino, 26 x 29 (1)	L.	99.05	.10	—	—	70–26	3/1939
	Frank Howard, Inc., Pittsfield	F.	99.09	.29	.62	—	43–56	8/1939
	9 English Plantain per oz. found (1)							
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.							
694	Ladino	L.	99.50	.05	.30	.15	40–50	3/1939
	Eastern States Farmers' Exchange, Taunton	F.	99.61	.05	.29	.05	64–35	8/1939
	CRIMSON CLOVER							
	COLLINS SEED SERVICE CO., Boston, Mass.							
1092	Crimson (1)	L.	98.00	.50	—	—	92–1	*1938
	Collins Seed Service, Boston	F.	97.42	.92	1.41	.25	75–4	7/1939
	(3 Brassica sp. per oz. found) (1)							
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.							
1927	Crimson, Grown in Europe	L.	99.00	.20	.70	.10	85–2	12/1938
	Eastern States Farmers' Exchange, Worcester	F.	99.55	.04	.41	—	84–3	7/1939
	THOMAS J. GREY CO., Boston, Mass.							
997	Crimson (1)	L.	99.53	.06	—	—	69	1/1939
	Thomas J. Grey Co., Boston	F.	97.41	.91	1.22	.46	84–8	7/1939
	90 Brassica spp. found per oz. (1)							
	6 Wild Mustard Seed declared							

†RED CLOVER

	ARTHUR R. CONE, Buffalo, N. Y.							
718	Red—Medium, No. 15-260 (1)	L.	99.50	.20	—	—	80-12	**
		F.	99.36	.27	.10	.27	95-5	8/1939
	Sunshine Feed Store, Bridgewater							
	34 English Plantain and 1 Dodder per oz. found (1)							
	ALBERT DICKINSON CO., Chicago, Ill.							
935	Red, Idaho Grown, No. 24746	L.	99.26	.18	.14	.42	72-25	1/1938
		F.	99.55	.10	.10	.25	93-5	8/1939
	Greenfield Farmers' Cooperative Exchange, Greenfield							
	DURYEA SEED CO., INC., New York City							
916	Red Clover, Domestic, No. 24478 (C)	L.	99.50	.25	—	—	80-10	1-1939
		F.	99.28	.12	.15	.45	89-4	8/1939
	Community Feed Co., Worcester							
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.							
1111	Red—Medium, Grown, Ohio, Ind. Ill. Mich.	L.	99.20	.20	.15	.45	82-10	12/1938
		F.	99.55	.09	.19	.17	90-6	8/1939
	Templeton Farmers' Coop. Assoc. Templeton							
	THOMAS W. EMERSON CO., Boston, Mass.							
780	Imported Red (E)	L.	98.00	.50	—	—	90	1/1939
		F.	98.91	.27	.41	.41	84-2	8/1939
	Haverhill Coal & Grain Co., Haverhill							
	20 English Plantain per oz. found (1)							
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.							
911	Red—Medium, No. 1798	L.	99.85	.06	.04	.05	93-5	2/1939
		F.	99.83	—	.17	—	95-4	8/1939
	Joseph Harris Co., Inc., Cambridge							
	WM. G. SCARLET & CO., Baltimore, Md.							
376	Red Clover—No. 16976 (E)	L.	99.20	.25	—	.30	80-5	4/1938
		F.	98.90	.08	.32	.70	70-4	8/1939
	W. K. Gilmore & Sons, Walpole							
	(6 English Plantain per oz. found) (1)							
	STANFORD SEED CO., Buffalo, N. Y.							
632	Red Clover, No. 7161 (1)	L.	99.25	.30	—	—	83-11	3/1939
		F.	99.26	.50	.11	.13	90-7	8/1939
	Ware Grain Co., Ware							
	31 English Plantain per oz. found (1)							
942	Red Clover, No. 4765	L.	99.00	.52	—	—	90-6	5/1939
		F.	98.80	.67	.14	.39	93-5	8/1939
	W. N. Potter Grain Store, Greenfield							
	13 English Plantain per oz. found (1)							
1131	Red Clover, No. 7235 (1)	L.	99.00	.54	—	—	84.50-10	3/1939
		F.	99.14	.48	.09	.29	88-4	8-1939
	E. J. Adams & Son, Gt. Barrington							
	30 English Plantain per oz. found (1)							

†E—1% of seed stained green, indicating Northern European origin.
C—1% of seed stained violet, indicating Canadian origin.
All other samples of red clover in this table are of Domestic origin.

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test
	RED CLOVER—Concluded							
	JOHN B. VARICK CO., Manchester, N. H.							
384	Red—Medium	L.	98.00	*			90	**
	H. V. Doolittle, Ashby	F.	98.28	.76	.04	.92	92-2	8/1939
	N. WERTHEIMER & SONS, Buffalo, N. Y.							
419	Red—Medium, No. 201, Grown in Michigan (2)	L.	96.84	2.8	—	—	90	1/1936
	C. P. Washburn Co., Middleboro	F.	96.25	1.48	.39	1.88	49-1	8/1939
	21 English Plantain per oz. found (1)							
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
130	Red—Medium Domestic—Pan American, No. 5869 (1)	L.	99.51	.13	—	—	87-8	2/1939
	H. S. Chadbourne & Co., Milford	F.	99.25	.22	.20	.33	95-4	8/1939
	16 English Plantain per oz. found (1)							
255	Red—Medium Imported (E)	L.	99.25	.33	—	—	80-10	1/1939
	Ryder Grain Co., Bridgewater	F.	98.96	.12	.63	.29	67-3	8/1939
	9 English Plantain and 3 Brassica sp. per oz. found (1)							
377	Red—Medium Domestic—Pan American, No. 5869	L.	99.51	.13	—	—	87-8	2/1939
	W. K. Gilmore & Sons, Walpole	F.	99.60	.18	.06	.16	94-4	8/1939
	9 English Plantain per oz. found (1)							
	SWEET CLOVER							
	ARTHUR R. CONE, Buffalo, N. Y.							
866	White Blossom Sweet Clover, No. 29-88	L.	99.25	.28	—	—	80-2	3/1939
	Sunshine Feed Store, Ayer	F.	99.29W .26Y 99.55	.04	.35	.06	84-4	8/1939
	ALBERT DICKINSON CO., Chicago, Ill.							
930	White Blossom Sweet Clover	L.	99.90	.04	.04	.04	80-13	11/1938
	Community Feed Store, So. Deerfield	F.	96.24W 3.39Y 99.63	—	.25	.12	90-6	8/1939

	ROSS BROS. CO., Worcester, Mass.							
801	White Blossom or Sweet Bokhara (2)	L.	99.65	6.45	—	—	94.00	1/1938
	Harry Sedar, Webster	F.	95.70W	.20	.20	.06	77.00	8/1939
			3.84Y					
			99.54					
	WM. G. SCARLET & CO., Baltimore, Md.							
391	White Blossom Sweet Clover, No. 2232	L.	96.30	.40	—	3.20	90–00	3/1938
	Continental Nurseries, Franklin	F.	97.09W	.32	.06	.16	66.00	8/1939
			2.37Y					
			99.46					
	STANFORD SEED CO., Buffalo, N. Y.							
981	White Blossom Sweet Clover, No. 4005	L.	99.70	.18	—	—	92–3	3/1938
	W. N. Potter Store, Hadley	F.	99.88	.08	.04	—	76–20	8/1939
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
920	White Blossom Sweet Clover, Fancy, No. 4062	L.	99.60	.10	—	—	80–5	1/1939
	Checkerboard Feed Store, Brookfield	F.	95.74W	.09	.07	.08	66–28	8/1939
			4.02Y					
			99.76					
	F. H. WOODRUFF & SONS, Milford, Conn.							
1117	White Sweet 84-201	L.	99.72	.02	.16	.10	87–4	2/1939
	O. B. Parks Co., Westfield	F.	97.54W	.10	.12	.12	88–2	8/1939
			2.12Y					
			99.66					
	WHITE CLOVER							
	COLLINS SEED SERVICE CO., Boston, Mass.							
1086	White Clover (1)	L.	98.00	.79	.21	—	90–1	6/1938
	Collins Seed Service Co., Boston	F.	96.02	1.21	1.36	1.41	80–13	8/1939
	(116 English Plantain and 1 Brassica per oz. found) (1)							
	ARTHUR R. CONE, Buffalo, N. Y.							
865	White Dutch, No. 32-28 (1)	L.	98.10	.55	—	—	86–7	2/1938
	Sunshine Feed Store, Ayer	F.	97.36	.53	.65	1.43	71–21	8/1939
	(60 English Plantain and 2 Brassica per oz. found) (1)							
	DURYEA SEED CO., INC., New York City							
1093	Wild White Kent (1)	L.	98.00	.75	—	—	78–16	1/1939
	Collins Seed Service, Boston	F.	98.95	.91	.14	—	82–16	7/1939
	(59 English Plantain and 48 Brassica spp. found per oz.) (1)							

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test
	WHITE CLOVER—Concluded							
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.							
938	White Dutch	L.	98.50	.25	.35	.90	80-10	12/1938
	Greenfield Farmers' Cooperative Exchange, Greenfield	F.	99.25	.05	.14	.56	85-13	8/1939
	GARFIELD WILLIAMSON, INC., New York, N. Y.							
1134	White Clover	L.	89.70	3.50	—	4.65	47-29	1/1938
	F. H. Turner & Co., Hardware, Gt. Barrington	F.	90.37	3.80	2.16	3.67	38-24	8/1939
	WM. G. SCARLET & CO., Baltimore, Md.							
374	White Clover, No. 2490 (1)	L.	98.00	.75	—	.85	80-5	4/1938
	W. K. Gilmore & Sons, Walpole	F.	98.81	.49	.63	1.07	66-6	8/1939
	(15 English Plantain per oz. found) (1)							
390	White Clover, No. 422 (1)	L.	98.90	.60	—	.25	80-5	4/1937
	Continental Nurseries, Franklin	F.	98.69	.51	.66	.14	68-6	8/1939
	(48 English Plantain per oz. found) (1)							
	SEARS, ROEBUCK & CO., Chicago, Ill.							
1108	White Clover	L.	97.00	1.00	1.50	.50	85-6	**
	Sears, Roebuck & Co., Worcester	F.	96.55	.14	.62	2.69	79-18	8/1939
	STANFORD SEED CO., Buffalo, N. Y.							
1130	White Clover, No. 4600	L.	98.50	.55	—	—	80-15.50	3/1939
	Stevens Grain Co., Gt. Barrington	F.	98.80	.53	.22	.45	76-16	8/1939
	(20 English Plantain per oz. found) (1)							
	JOHN B. VARICK CO., Manchester, N. H.							
846	White Clover, Fancy (1)	L.	97.40	*	—	—	93.00	**
	F. X. Robichaud Hardware Co., Methuen	F.	97.49	.36	.32	1.83	84.12	8/1939
	10 English Plantain per oz. found (1)							
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
129	White Clover (1)	L.	98.25	.60	.55	.60	90.00	1/1939
	H. S. Chadbourne & Co., Milford	F.	97.43	.74	.64	1.19	93-1	8/1939
	58 English Plantain per oz. found (1)							
674	White Clover (1)	L.	98.49	.65	—	—	80-10	1/1939
	Farm Service Store, Attleboro	F.	98.24	.38	.64	.74	82-16	8/1939
	105 English Plantain per oz. found (1)							

CORN

	BARTLETT & DOW CO., Lowell, Mass.							
557F	West Branch Sweepstakes	L.	98.00	.10	—	—	90.00	3/1938
	Bartlett & Dow Co., Lowell	F.	99.35	—	.65	—	94.00	7/1939
558F	Leaming	L.	98.00	.10	—	—	90.00	3/1938
	Bartlett & Dow Co., Lowell	F.	98.58	—	1.42	—	77.00	8/1939
559F	Eureka Ensilage	L.	98.00	.10	—	—	90.00	3/1938
	Bartlett & Dow Co., Lowell	F.	99.31	—	.69	—	90.00	7/1939
	JOSEPH BRECK & SONS, CORP., Boston, Mass.							
93F	Early Yellow Canada, No. 8294 W	L.	98.00	—	—	—	88.00	1/1939
	Joseph Breck & Sons, Corp., Boston	F.	99.90	—	.10	—	82.00	7/1939
94F	Eureka Ensilage, No. 8362 W	L.	98.00	—	—	—	96.00	1/1939
	Joseph Breck & Sons, Corp., Boston	F.	99.93	—	.07	—	93.00	8/1939
95F	Mondamin, No. 8357	L.	98.00	—	—	—	92.00	1/1939
	Joseph Breck & Sons, Corp., Boston	F.	100.00	—	—	—	75.00	7/1939
96F	Breck's Sweepstakes, No. 8360	L.	98.00	—	—	—	90.00	1/1939
	Joseph Breck & Sons, Corp., Boston	F.	99.74	—	.26	—	88.00	7/1939
97F	Smoky Dent, No. 8377	L.	98.00	—	—	—	90.00	1/1939
	Joseph Breck & Sons, Corp., Boston	F.	100.00	—	—	—	84.00	7/1939
	COBURN SEED & SUPPLY CO., Chelmsford, Mass.							
486F	Excelsior Ensilage	L.	*	—	—	—	90.00	**
	Coburn Seed & Supply Co., Chelmsford	F.	99.77	—	.23	—	95.00	7/1939
	ARTHUR R. CONE, Buffalo, N. Y.							
553F	Leaming 80-453	L.	98.00	—	—	—	90.00	3/1939
	Farm Service Store, Newburyport	F.	99.19	—	.78	.03	93.00	7/1939
554F	Early Eureka 80-452	L.	99.00	—	—	—	92.00	3/1939
	Farm Service Store, Newburyport	F.	99.85	—	.15	—	95.00	7/1939
728F	Southern White 80-447	L.	99.00	—	—	—	93.00	3/1939
	Farm Service Store, Dighton	F.	100.00	—	—	—	97.00	7/1939
869F	Corn (6) 83-108 (Field)	L.	99.00	—	—	—	93.00	3/1939
	Sunshine Feed Store, Ayer	F.	100.00	—	—	—	96.00	7/1939
870F	Improved Leaming 80-475	L.	99.00	—	—	—	93.00	5/1939
	Sunshine Feed Store, Ayer	F.	100.00	—	—	—	95.00	7/1939

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No	Wholesale Distributor, Brand or Trade Name of Seed, Dealer and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test
	CORN—Continued							
	ARTHUR R. CONE, Buffalo, N. Y.							
871	Early Eureka 80-448	L.	99.00	—	—	—	92.00	3/1939
	Sunshine Feed Store, Ayer	F.	99.95	—	.05	—	97.00	7/1939
874F	Early Canada Flint 83-111	L.	99.00	—	—	—	95.00	3/1939
	Sunshine Feed Store, Ayer	F.	100.00	—	—	—	93.00	7/1939
876F	Minnesota, No. 13, 80-440	L.	99.00	—	—	—	93.00	3/1939
	Farm Service Co., Ayer	F.	100.00	—	—	—	99.00	7/1939
877F	Improved Leaming 80-451	L.	99.00	—	—	—	92.00	3/1939
	Farm Service Co., Ayer	F.	99.59	—	.41	—	95.00	7/1939
948	Arco Ensilage 80-481 (6)	L.	99.00	—	—	—	92.00	5/1939
	Sunshine Feed Store, Greenfield	F.	100.00	—	—	—	89.00	7/1939
949	Lancaster Surecrop 80-441	L.	99.00	—	—	—	92.00	2/1939
	Sunshine Feed Store, Greenfield	F.	100.00	—	—	—	97.00	7/1939
974	Hybrid 29-3, 80 H-9	L.	98.00	—	—	—	94.00	1/1939
	Hoosac Valley Coal & Grain Co., Adams	F.	99.40	—	.60	—	99.00	7/1939
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.							
688F	West Branch Sweepstakes	L.	99.25	—	.75	—	90.00	12/1938
	Eastern States Farmers' Exchange, Taunton	F.	98.98	—	1.02	—	96.00	7/1939
689F	Canada Leaming	L.	99.25	—	.75	—	90.00	**
	Eastern States Farmers' Exchange, Taunton	F.	99.97	—	.03	—	98.00	7/1939
690F	Lancaster Surecrop	L.	99.25	—	.75	—	90.00	12/1938
	Eastern States Farmers' Exchange, Taunton	F.	99.17	—	.83	—	95.00	7/1939
691F	Improved Leaming	L.	99.25	—	.75	—	90.00	12/1938
	Eastern States Farmers' Exchange, Taunton	F.	99.83	—	.17	—	98.00	7/1939
848F	Minnesota, No. 13	L.	92.25	—	.75	—	90.00	12/1938
	Eastern States Farmers' Exchange, Brockton	F.	99.57	—	.43	—	95.00	7/1939

932	Lancaster Surecrop	L.	99.25	—	.75	—	90.00	12/1938
	Greenfield Farmers' Cooperative Exchange, Greenfield	F.	100.00	—	—	—	96.00	7/1939
934	Westbranch Sweepstakes	L.	99.25	—	.75	—	90.00	12/1938
	Greenfield Farmers' Cooperative Exchange, Greenfield	F.	100.00	—	—	—	97.00	7/1939
959	Cornell 29-3	L.	99.25	—	.75	—	90.00	12/1938
	Eastern States Farmers' Exchange, Shelburne Falls	F.	100.00	—	—	—	97.00	7/1939
960	Hybrid Canada Leaming	L.	99.25	—	.75	—	90.00	12/1938
	Eastern States Farmers' Exchange, Shelburne Falls	F.	99.76	—	.24	—	99.00	7/1939
961	Cornell, No. 11	L.	99.25	—	.75	—	90.00	12/1938
	Eastern States Farmers' Exchange, Shelburne Falls	F.	100.00	—	—	—	100.00	7/1939
962	Golden Nugget	L.	99.25	—	.75	—	90.00	12/1938
	Eastern States Farmers' Exchange, Shelburne Falls	F.	100.00	—	—	—	95.00	7/1939
963	Minnesota, No. 13	L.	99.25	—	.75	—	90.00	12/1938
	Eastern States Farmers' Exchange, Shelburne Falls	F.	99.61	—	.31	.08	94.00	7/1939
	THOMAS W. EMERSON CO., Boston, Mass.							
172F	Leaming	L.	98.00	—	—	—	85.00	12/1938
	Thomas W. Emerson Co., Boston	F.	99.66	—	.34	—	93.00	7/1939
173F	Sweepstakes	L.	99.00	—	—	—	95.00	12/1938
	Thomas W. Emerson Co., Boston	F.	99.76	—	.24	—	93.00	7/1939
174F	Longfellow NY State Flint	L.	98.00	—	—	—	85.00	*/1939
	Thomas W. Emerson Co., Boston	F.	100.00	—	—	—	61.00	7/1939
314F	Early Canada	L.	98.00	—	—	—	85.00	1/1939
	Thomas W. Emerson Co., Boston	F.	100.00	—	—	—	56.00	7/1939
315F	West Branch Sweepstakes	L.	98.00	—	—	—	85.00	1/1939
	Thomas W. Emerson Co., Boston	F.	99.97	—	.03	—	29.00	8/1939
316F	Cornell, No. 11	L.	98.00	—	—	—	85.00	1/1939
	Thomas W. Emerson Co., Boston	F.	100.00	—	—	—	82.00	7/1939
	THOMAS J. GREY CO., Boston, Mass.							
56F	Sweepstakes	L.	99.00	—	—	—	92.00	2/1939
	Thomas J. Grey Co., Boston	F.	100.00	—	—	—	96.00	7/1939
57F	Leaming	L.	99.00	—	—	—	91.00	2/1939
	Thomas J. Grey Co., Boston	F.	99.24	—	.76	—	87.00	7/1939

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test
	CORN—Continued							
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.							
904	Westbranch Sweepstakes No. 1653, N. Y. Field No. 2, Certified Seed 38872	L.	100.00	—	Trace	—	97.00	12/1938
	Joseph Harris Co., Inc., Cambridge	F.	100.00	—	—	—	97.00	7/1939
905	Harris Mammoth Yellow Flint, No. 1660....	L.	99.50	—	.50	—	**	**
	Joseph Harris Co., Inc., Cambridge	F.	100.00	—	—	—	98.00	7/1939
	THE HOFFMAN SEED CO., Eagle Bridge, N. Y.							
650F	West Branch Sweepstakes, No. 369.....	L.	99.00	—	—	—	90.00	3/1939
	Checkerboard Feed Store, Amesbury	F.	100.00	—	—	—	94.00	7/1939
651F	Improved Leaming.....	L.	99.00	—	—	—	90.00	3/1939
	Checkerboard Feed Store, Amesbury	F.	99.64	—	.36	—	96.00	7/1939
652F	Early Eureka, No. 426.....	L.	99.00	—	—	—	90.00	3/1939
	Checkerboard Feed Store, Amesbury	F.	99.84	—	.16	—	94.00	7/1939
680F	Lancaster Surecrop, No. 356.....	L.	99.00	—	—	—	82.00	3/1939
	Checkerboard Feed Store, Taunton	F.	99.65	—	.35	—	90.00	7/1939
682F	Improved Leaming, No. 357 A.....	L.	99.00	—	—	—	90.00	3/1939
	Checkerboard Feed Store, Taunton	F.	99.93	—	.07	—	95.00	7/1939
919	Late Eureka, No. 425.....	L.	99.00	—	—	—	90.00	3/1939
	Checkerboard Feed Store, East Brookfield	F.	100.00	—	—	—	97.00	7/1939
946	Lancaster Surecrop, No. 376.....	L.	99.00	—	—	—	90.00	4/1939
	Checkerboard Feed Store, Greenfield	F.	99.93	—	.07	—	86.00	7/1939
947	New York State Type 8 Row Yellow Flint, No. 387	L.	99.00	—	—	—	90.00	4/1939
	Checkerboard Feed Store, Greenfield	F.	100.00	—	—	—	94.00	7/1939
979	Yellow Sweepstakes 654-55.....	L.	99.00	—	—	—	90.00	3/1939
	Checkerboard Feed Store, Amherst	F.	99.84	—	.16	—	88.00	7/1939
	MICHAEL LEONARD SEED CO., Chicago, Ill.							
896	Iowealth Ensilage Hybrid—M 8610.....	L.	99.00	—	1.00	—	92.00	12/1938
	United Cooperative Farmers, Inc., Fitchburg	F.	100.00	—	—	—	100.00	7/1939

	THE PAGE SEED CO., Greene, N. Y.							
524F	West Branch Sweepstakes, No. 5020...	L.	99.00	—	—	—	90.00	3/1938
	Seder & Gruber, Maynard	F.	99.70	—	.30	—	85.00	7/1939
525F	Improved Leaming, No. 5125 (2)....	L.	99.00	—	—	—	92.00	**
	Seder & Gruber, Maynard	F.	100.00	—	—	—	69.00	8/1939
541F	Page's Longfellow Flint, No. 5066..	L.	99.00	—	—	—	90.00	3/1939
	Knight Grain Co., Newburyport	F.	100.00	—	—	—	94.00	7/1939
543F	Improved Leaming, No. 1135.....	L.	99.00	—	—	—	90.00	3/1939
	Knight Grain Co., Newburyport	F.	99.86	—	.14	—	98.00	7/1939
698F	Page's Improved Leaming, No. 1025.	L.	99.00	—	—	—	90.00	3/1939
	Pierce Hardware Co., Taunton	F.	100.00	—	—	—	98.00	7/1939
699F	Page's Golden Sweepstakes, No. 5290...	L.	99.00	—	—	—	90.00	3/1939
	Pierce Hardware Co., Taunton	F.	99.61	—	.39	—	95.00	7/1939
774F	Improved Leaming, No. 1200.....	L.	99.00	—	—	—	90.00	4/1939
	Haverhill Coal & Grain Co., Haverhill	F.	100.00	—	—	—	96.00	7/1939
775F	Golden Sweepstakes, No. 1180.....	L.	99.00	—	—	—	90.00	3/1939
	Haverhill Coal & Grain Co., Haverhill	F.	100.00	—	—	—	94.00	7/1939
922	Early Eureka, No. 1095.....	L.	99.00	—	—	—	90.00	3/1939
	C. J. Howland, No. Brookfield	F.	100.00	—	—	—	73.00	7/1939
923	Improved Leaming, No. 1135...	L.	99.00	—	—	—	90.00	3/1939
	C. J. Howland, No. Brookfield	F.	99.88	—	.12	—	96.00	7/1939
924	Canada Flint, No. 1185.....	L.	99.00	—	—	—	90.00	4/1939
	C. J. Howland, No. Brookfield	F.	99.54	—	.46	—	93.00	7/1939
925	Westbranch Sweepstakes, No. 1110	L.	99.00	—	—	—	90.00	3/1939
	C. J. Howland, No. Brookfield	F.	99.49	—	.51	—	86.00	7/1939
954	Page's Pride of York, No. 5270 ...	L.	99.00	—	—	—	90.00	3/1939
	J. L. Dunnell & Son, Bernardston	F.	100.00	—	—	—	93.00	7/1939
955	Page's True Virginia Eureka, No. 1095	L.	99.00	—	—	—	90.00	3/1939
	J. L. Dunnell & Son, Bernardston	F.	99.36	—	.64	—	93.00	7/1939
956	Page's Westbranch Sweepstakes, No. 1190...	L.	99.00	—	—	—	90.00	4/1939
	J. L. Dunnell & Son, Bernardston	F.	99.62	—	.38	—	92.00	7/1939

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test
	CORN—Continued							
	THE PAGE SEED CO., Greene, N. Y.							
976	Page's Red Cob Ensilage, No. 5010	L.	99.00	—	—	—	90.00	3/1939
	Butler Coal & Grain Co., Adams	F.	99.70		.27	.03	93.00	7/1939
977	Page's N. Y. State 8 Row Flint, No. 1220	L.	99.00	—	—	—	90.00	4/1939
	Butler Coal & Grain Co., Adams	F.	99.60	—	.20	.20	89.00	7/1939
978	Page's Golden Beauty, No. 1120	L.	99.00	—	—	—	90.00	3/1939
	Stanley Coal & Grain Co., Adams	F.	100.00	—	—	—	95.00	7/1939
	PHILADELPHIA SEED CO., INC., Philadelphia, Pa.							
730F	Lancaster Surecrop M 20-R	L.	99.80	—	.20	—	94.00	2/1939
	W. G. Pearse Co., Fall River	F.	100.00	—	—	—	94.00	7/1939
	REIST SEED CO., Lancaster, Pa.							
258F	Reist Sweepstakes	L.	99.00	—	—	—	Above 90.00	3/1939
	Eastern Grain Co., Bridgewater	F.	99.79	—	.21	—	91.00	7/1939
555F	Mammoth Yellow Sweepstakes	L.	99.00	—	—	—	Above 90.00	3/1939
	Farm Service Store, Newburyport	F.	99.57	—	.43	—	93.00	7/1939
875F	Lancaster County Sure Crop	L.	99.00	—	—	—	Above 90.00	3/1939
	Farm Service Store, Ayer	F.	100.00	—	—	—	96.00	7/1939
931	8 Rowed Yellow Flint	L.	99.00	—	—	—	Above 90.00	3/1939
	Greenfield Farmers' Cooperative Exchange, Greenfield	F.	100.00	—	—	—	98.00	7/1939
	ROSS BROS. CO., Worcester, Mass.							
605F	Yellow Sweepstakes	L.	99.00	—	—	—	90.00	3/1939
	Ross Bros. Co., Worcester	F.	99.67	—	.33	—	93.00	7/1939
606F	Longfellow	L.	99.00	—	—	—	88.00	1/1939
	Ross Bros. Co., Worcester	F.	99.91	—	.09	—	96.00	7/1939
607F	Early Canada	L.	99.00	—	—	—	98.00	1/1939
	Ross Bros. Co., Worcester	F.	99.91	—	.09	—	97.00	7/1939

608F	Smoky Dent	L.	99.00	—	—	—	97.00	1/1939
	Ross Bros. Co., Worcester	F.	100.00	—	—	—	97.00	7/1939
609F	Improved Leaming	L.	99.00	—	—	—	98.00	1/1939
	Ross Bros. Co., Worcester	F.	100.00	—	—	—	98.00	7/1939
610F	West Branch Sweepstakes	L.	99.00	—	—	—	99.00	3/1939
	Ross Bros. Co., Worcester	F.	100.00	—	—	—	90.00	7/1939
	THE STANFORD SEED CO., Buffalo, N. Y.							
803F	Golden Nugget—No. 1262 A	L.	98.00	—	—	—	94.00	3/1939
	Ware Grain & Coal Co., Ware	F.	100.00	—	—	—	95.00	7/1939
804F	Leaming, No. 7329	L.	98.00	—	—	—	93.00	3/1939
	Ware Grain & Coal Co., Ware	F.	99.85	—	.15	—	91.00	7/1939
921	C. P. Special, No. 4898	L.	98.00	—	—	—	93.00	4/1939
	C. J. Howland, No. Brookfield	F.	100.00	—	—	—	90.00	7/1939
941	Improved Leaming, No. 7329	L.	98.00	—	—	—	93.00	3/1939
	W. N. Potter Grain Store, Greenfield	F.	99.70	—	.30	—	95.00	7/1939
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
297F	Yellow Sweepstakes, No. 7154	L.	98.00	—	—	—	90.00	1/1939
	Sargent Grain & Supply Co., Brockton	F.	100.00	—	—	—	89.00	7/1939
298F	Improved Leaming	L.	99.00	—	—	—	90.00	2/1939
	Sargent Grain & Supply Co., Brockton	F.	99.87	—	.13	—	97.00	7/1939
645F	Broad Yellow Sweepstakes	L.	99.00	—	—	—	90.00	3/1939
	Farmers' Feed & Supply Co., Amesbury	F.	100.00	—	—	—	89.00	7/1939
686F	Excelsior Ensilage	L.	99.00	—	—	—	90.00	3/1939
	Borden Grain Co., Taunton	F.	99.88	—	.12	—	93.00	7/1939
687F	West Branch Sweepstakes	L.	99.00	—	—	—	90.00	3/1939
	Borden Grain Co., Taunton	F.	99.93	—	.07	—	92.00	7/1939
695F	Early Canada Flint	L.	99.00	—	—	—	90.00	3/1939
	Pierce Hardware Co., Taunton	F.	100.00	—	—	—	95.00	7/1939
696F	Virginia Eureka	L.	99.00	—	—	—	85.00	3/1939
	Pierce Hardware Co., Taunton	F.	99.85	—	.15	—	91.00	7/1939
697F	Longfellow Flint	L.	98.00	—	—	—	90.00	3/1939
	Pierce Hardware Co., Taunton	F.	100.00	—	—	—	97.00	7/1939

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test
	CORN—Concluded							
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
888	Early Eureka	L.	98.00	—	—	—	90.00	3/1939
	Farm Service Store, Fitchburg	F.	99.42	—	.58	—	85.00	7/1939
933	Improved Leaming	L.	99.00	—	—	—	90.00	2/1939
	Greenfield Farmers' Cooperative Exchange, Greenfield	F.	99.90	—	.07	.03	95.00	7/1939
966	White Cap Yellow Dent	L.	99.00	—	—	—	90.00	3/1939
	H. Newell & Co., Shelburne Falls	F.	99.92	—	.08	—	99.00	7/1939
967	Early 8 Row Canada	L.	99.00	—	—	—	90.00	3/1939
	H. Newell & Co., Shelburne Falls	F.	100.00	—	—	—	95.00	7/1939
968	Excelsior Ensilage	L.	99.00	—	—	—	90.00	3/1939
	H. Newell & Co., Shelburne Falls	F.	99.91	—	.09	—	96.00	7/1939
	T. W. WOOD & SONS, SEEDSMEN, Richmond, Va.							
805F	West Branch Sweepstakes, No. 763	L.	99.00	.10	—	—	90.00	4/1939
	Ware Grain & Coal Co., Ware	F.	99.90	—	.10	—	94.00	7/1939
806	Eureka Ensilage, No. 2044	L.	99.00	.10	—	—	90.00	4/1939
	Ware Grain & Coal Co., Ware	F.	99.85	—	.15	—	99.00	7/1939
926	Early Wonder, No. 764	L.	99.00	—	—	—	90.00	3/1939
	Community Feed Store, So. Deerfield	F.	99.41	—	.59	—	95.00	7/1939
964	Lancaster Surecrop	L.	99.00	.10	—	—	90.00	4/1939
	W. N. Potter Grain Stores, Shelburne Falls	F.	100.00	—	—	—	91.00	7/1939
971	Hybrid Red Sweepstakes, No. 2412	L.	99.00	—	—	—	90.00	3/1939
	Berkshire Coal & Grain Co., No. Adams	F.	100.00	—	—	—	96.00	7/1939
972	Westbranch Sweepstakes, No. 770	L.	99.00	.10	—	—	90.00	4/1939
	Berkshire Coal & Grain Co., No. Adams	F.	99.62	—	.38	—	89.00	7/1939
973	Yellow Sweepstakes, No. 126	L.	99.00	.10	—	—	90.00	4/1939
	Berkshire Coal & Grain Co., No. Adams	F.	99.86	—	.14	—	92.00	7/1939
	T. W. WOOD & SONS, Wilmington, N. C.							
939	Select Beauty, No. 186	L.	99.00	.10	—	—	90.00	5/1939
	W. N. Potter Grain Stores, Greenfield	F.	100.00	—	—	—	97.00	7/1939

940	Eureka Ensilage, No. 2042	L.	99.00	—	—	—	90.00	3/1939
	W. N. Potter Grain Stores, Greenfield	F.	99.56	—	.42	—	97.00	7/1939
	F. H. WOODRUFF & SONS, Milford, Conn.							
836F	Improved Leaming, No. 7-959	L.	99.00	—	—	—	89.00	3/1939
	Treat Hardware Co., Lawrence	F.	99.92	—	.08	—	82.00	7/1939
837F	Yellow Sweepstakes 7-039-1	L.	99.00	—	—	—	87.00	1/1939
	Treat Hardware Co., Lawrence	F.	99.62	—	.32	.06	90.00	7/1939
838	Eureka Ensilage, No. 13928	L.	99.00	—	—	—	95.00	3/1939
	Treat Hardware Co., Lawrence	F.	99.89	—	.11	—	98.00	7/1939
842F	West Branch Sweepstakes, No. 13932	L.	99.00	—	—	—	93.00	3/1939
	Treat Hardware Co., Lawrence	F.	99.93	—	.07	—	90.00	7/1939
	S. D. WOODRUFF & SONS, Orange, Conn.							
626F	Woodruff's Select Beauty	L.	99.00	—	—	—	90.00	4/1939
	Ware Grain & Coal Co., Ware	F.	100.00	—	—	—	93.00	7/1939
965	Woodruff's Select Beauty	L.	99.00	—	—	—	90.00	4/1939
	W. N. Potter Grain Stores, Shelburne Falls	F.	99.71	—	.29	—	87.00	7/1939
	FESCUES							
	COLLINS SEED SERVICE CO., Boston, Mass.							
1089	Fine Leaved Fescue	L.	75.00	.75	23.00	—	75.00	12/1937
	Collins Seed Service Co., Boston	F.	69.93	.16	29.81	.10	47.00	6/1939
	CRAVER-DICKINSON SEED CO., Buffalo, N. Y.							
1088	New Zealand Chewing's 34-225	L.	99.30	.05	—	—	*	5/1939
	Collins Seed Service Co., Boston	F.	99.37	.04	.54	.05	87.00	7/1939
	THOMAS W. EMERSON CO., Boston, Mass.							
1149	Chewing's Fescue	L.	95.00	.25	—	—	92.00	1/1939
	Frank Howard, Inc., Pittsfield	F.	98.53	.05	1.22	.20	77.00	7/1939
	THOMAS J. GREY CO., Boston, Mass.							
1001	Chewing's Fescue	L.	97.98	.17	—	—	77.00	1/1939
	Thomas J. Grey Co., Boston	F.	96.99	.24	.80	1.97	99.00	6/1939
	JOHN D. LYON SEED CO., Belmont, Mass.							
1030	New Zealand Chewing's Fescue (†)	L.	98.00	.30	1.70	—	70.00	4/1939
	John D. Lyon Seed Co., Belmont	F.	95.87	.17	3.65	.31	66.00	6/1939

(†) Festuca spp. not pure New Zealand Chewing's Fescue.

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test
	MANGELS							
679	COMSTOCK, FERRE & CO., Wethersfield, Conn. Mammoth Long Red (2) Mansfield Lumber Co., Mansfield	L. F.	* 99.66	— —	— .34	— —	* 76.00	** 8/1939
1155	FOSTER FARRAR CO., Northampton, Mass. Giant Half Sugar Rose Foster Farrar Co., Northampton	L. F.	* 99.84	— —	— .06	— .10	* 93.00	** 8/1939
833	CHARLES C. HART SEED CO., Wethersfield, Conn. Giant Long Red H. K. Webster Co., Lawrence	L. F.	* 99.87	* .03	— .10	— —	* 86.00	** 8/1939
1144	JEROME B. RICE SEED CO., Cambridge, N. Y. Wurzel, Golden Tankard Frank Howard, Inc., Pittsfield	L. F.	* 99.80	* .02	— .18	— —	* 90.00	** 8/1939
1171	ROSS BROS. CO., Worcester, Mass. Mammoth Long Red Ross Bros. Co., Worcester	L. F.	* 99.62	— —	— .30	— .08	* 72.00	** 8/1939
1206	F. H. WOODRUFF & SONS, Milford, Conn. Yellow Globe Peirson Hardware Co., Pittsfield	L. F.	* 99.71	— —	— .29	— —	* 82.00	** 8/1939
	GOLDEN MILLET							
416	WM. G. SCARLET & CO., Baltimore, Md. Golden Millet, No. 7278 C. P. Washburn Co., Middleboro	L. F.	99.00 99.58	.25 .17	— .25	— —	90.00 45.00	2/1937 8/1939
259	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y. Golden, No. 9064 Eastern Grain Co., Bridgewater	L. F.	98.76 98.26	.81 1.16	— .06	— .52	90.00 88.00	2/1938 8/1939
	HUNGARIAN MILLET							
952	ARTHUR R. CONE, Buffalo, N. Y. Hungarian, No. 38-88 Sunshine Feed Store, Greenfield	L. F.	98.94 99.04	.80 .68	— .24	— .04	82.00 44.00	1/1938 8/1939

	ALBERT DICKINSON CO., Chicago, Ill.							
646	Hungarian, No. 8352	L.	98.56	1.40	.04	—	80.00	3/1939
	Farmer's Feed & Supply Co., Amesbury	F.	98.08	1.59	.23	.10	84.00	8/1939
	CRAVER-DICKINSON SEED CO., Buffalo, N. Y.							
927	Hungarian 83-34	L.	99.28	.02	—	—	82.00	2/1937
	Community Feed Store, So. Deerfield	F.	98.91	.63	.14	.32	80.00	8/1939
	THOMAS W. EMERSON CO., Boston, Mass.							
777	Hungarian	L.	98.00	*		—	85.00	*/1938
	Haverhill Coal & Grain Co., Haverhill	F.	99.72	.16	.12	—	94.00	8/1939
	WM. G. SCARLET & CO., Baltimore, Md.							
418	Hungarian, No. 7287	L.	98.00	.50	—	—	85.00	1/1938
	C. P. Washburn Co., Middleboro	F.	98.56	.02	1.01	.41	70.00	8/1939
	STANFORD SEED CO., Buffalo, N. Y.							
631	Hungarian, No. 7182	L.	99.08	.60	—	—	90.00	2/1939
	Ware Grain & Coal Co., Ware	F.	99.20	.58	.18	.04	84.00	8/1939
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
647	Hungarian, No. 9089 (1)	L.	98.85	.82	—	—	87.00	3/1939
	Farmer's Feed & Supply Co., Amesbury	F.	98.50	.19	1.25	.06	86.00	8/1939
	(3 Brassica sp. found per oz.) (1)							
831	Hungarian, No. 9056	L.	98.50	.43	—	—	90.00	1/1938
	H. K. Webster Co., Lawrence	F.	98.83	.38	.36	.43	76.00	8/1939

JAPANESE MILLET

	COMSTOCK, FERRE & CO., Wethersfield, Conn.							
1116	Japanese, No. 1263	L.	98.25	1.25	—	—	93.00	1/1939
	O. B. Parks Co., Westfield	F.	98.29	1.63	.08	—	81.00	8/1939
	ARTHUR R. CONE, Buffalo, N. Y.							
720	Japanese, No. 38-127	L.	98.00	2.00	—	—	90.00	1/1939
	Sunshine Feed Store, Bridgewater	F.	98.38	1.38	.23	.01	87.00	8/1939
	EASTER STATES FARMERS' EXCHANGE, Springfield, Mass.							
852	Japanese	L.	98.00	1.80	.20	—	85.00	12/1938
	Eastern States Farmers' Exchange, Brockton	F.	98.47	1.44	.09	—	90.00	8/1939
	THE PAGE SEED CO., Greene, N. Y.							
776	Japanese J-5339	L.	97.12	2.68	—	—	Approx. 80.00	1/1939
	Haverhill Coal & Grain Co., Haverhill	F.	97.35	2.63	.02	—	91.00	8/1939

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test
	JAPANESE MILLET—Concluded							
	ROSS BROS. CO., Worcester, Mass.							
900	Japanese	L.	97.60	2.32	—	—	83.00	2/1938
	United Cooperative Farmers, Inc., Fitchburg	F.	97.92	1.93	.09	.06	82.00	8/1939
	WM. G. SCARLET & CO., Baltimore, Md.							
712	Japanese, No. 17183	L.	96.50	2.70	—	.32	80.00	5/1938
	Stanley Wood Grain Co., Taunton	F.	97.61	1.53	.43	.43	61.00	8/1939
	STANFORD SEED CO., Buffalo, N. Y.							
807	Japanese, No. 7195	L.	98.58	1.18	—	—	93.00	2/1939
	Ware Grain & Coal Co., Ware	F.	98.47	1.44	.09	—	94.00	8/1939
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
262	Japanese, No. 9068	L.	97.56	2.80	—	—	85.00	1/1938
	Eastern Grain Co., Bridgewater	F.	97.18	2.67	.15	—	86.00	8/1939
263	Fancy Japanese, No. 9085	L.	98.47	1.50	—	—	90.00	**
	Eastern Grain Co., Bridgewater	F.	98.96	.69	.35	—	93.00	8/1939
	OATS							
	JOSEPH BRECK & SONS, CORP., Boston, Mass.							
98	Swedish Select	L.	98.00	*	—	—	95.00	1/1939
	Joseph Breck & Sons, Corp., Boston	F.	99.00	.16	.35	.49	96.00	8/1939
	ARTHUR R. CONE, Buffalo, N. Y.							
868	Anchor Brand, No. 36-110 (6) Variety Unknown	L.	98.00	*	—	—	90.00	5/1939
	Sunshine Feed Store, Ayer	F.	98.14	.04	.62	1.20	96.00	8/1939
	THE CUTLER COMPANY, No. Wilbraham, Mass.							
625	Oats (6)	L.	98.00	*	—	—	95.00	**
	Ware Grain & Coal Co., Ware	F.	97.33	.14	1.54	.99	96.00	8/1939
	2 Brassica sp. and One Quack Grass per oz. found (1)							
	ALBERT DICKINSON CO., Chicago, Ill.							
371	Swedish Type, No. 073105 (6)	L.	98.44	.01	.10	1.45	90.00	3/1939
	Thomas W. Emerson Co., Boston	F.	98.24	.07	.45	1.24	94.00	8/1939

372	Domestic, No. 073102 (6)	L.	99.41	.26	.11	.22	96.00	3/1939
	Thomas W. Emerson Co., Boston	F.	99.17	.30	.31	.22	97.00	8/1939
373	Swedish Type, No. 073101 (6)	L.	98.00	.10	.10	1.80	92.00	2/1939
	Thomas J. Grey Co., Boston	F.	97.65	.19	.34	1.82	98.00	8/1939
	1 Brassica sp. per oz. found (1)							
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.							
692	Selected Seed (6)	L.	97.00	.15	.85	2.00	90.00	12/1938
	Eastern States Farmers' Exchange, Taunton	F.	99.82	.03	.08	.07	96.00	8/1939
693	Selected Seed (6)	L.	97.00	.15	.85	2.00	90.00	12/1938
	Eastern States Farmers' Exchange, Taunton	F.	99.82	.01	.07	.10	98.00	8/1939
	THOMAS W. EMERSON CO., Boston, Mass.							
522	Swedish Type (6)	L.	98.44	—	—	—	90.00	3/1939
	United Cooperative Society, Maynard	F.	98.38	—	.23	1.39	96.00	8/1939
	MACKENZIE & WINSLOW, INC., Fall River, Mass.							
729	Seed Oats (6)	L.	*	*	—	—	*	**
	Mackenzie & Winslow, Inc., Fall River	F.	99.01	.13	.22	.64	97.00	8/1939
	2 Brassica sp. per oz. found (1)							
	PARK & POLLARD CO., Buffalo, N. Y.							
526	Selected Oats (6)	L.	96.00	*	—	—	95.00	1/1939
	Seder & Gruber, Maynard	F.	98.81	.11	.28	.80	97.00	8/1939
	RALSTON PURINA CO., Buffalo, N. Y.							
681	Victory Oats	L.	97.50	.20	—	—	95.00	2/1939
	Checkerboard Feed Stores, Taunton	F.	96.57	.61	.81	2.01	94.00	8/1939
	ROSS BROS. CO., Worcester, Mass.							
611	Swedish Select	L.	97.18	.08	—	—	93.00	3/1939
	Ross Bros. Co., Worcester	F.	97.67	.12	.28	1.93	98.00	8/1939
	ST. ALBANS GRAIN CO., St. Albans, Vt.							
265	Hygrade Fancy Seed (6)	L.	97.00	*	—	—	92.00	**
	Eastern Grain Co., Bridgewater	F.	99.09	.16	.07	.68	98.00	8/1939
	H. K. WEBSTER CO., Lawrence, Mass.							
829	Blue Seal (6)	L.	98.00	*	—	—	95.00	**
	H. K. Webster Co., Lawrence	F.	98.66	.17	.44	.73	98.00	8/1939
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
542	Swedish Select	L.	98.00	.05	—	—	94.00	2/1939
	Knight Grain Co., Newburyport	F.	96.53	.03	.18	3.26	96.00	8/1939
	2 Brassica sp. per oz. found (1)							

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test
	OATS—Concluded							
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
653	Oats (6)	L.	99.50	.05		-	94.00	3/1939
	Farmer's Feed & Supply Co., Amesbury	F.	97.36	.13	.11	2.40	94.00	8/1939
	3 Brassica sp. per oz. found (1)							
	THE WISE GRAIN CO., Bellevue, Ohio							
521	Sunshine, No. 40, Variety Unknown (6)	L.	96.00	*	—	—	95.00	2/1939
	United Cooperative Society, Maynard	F.	93.13	.02	.12	6.73	98.00	8/1939
	ORCHARD GRASS							
	ARTHUR R. CONE, Buffalo, N. Y.							
867	Orchard Grass, No. 33-31	L.	91.12	.07	—	—	90.00	2/1939
	Sunshine Feed Store, Ayer	F.	90.41	.09	8.82	.68	92.00	7/1939
	JOHN B. VARICK CO., Manchester, N. H.							
847	Orchard Grass	L.	90.00	*	—	—	85.00	**
	F. X. Robichaud Hardware Co., Methuen	F.	88.82	.10	10.88	.20	89.00	7/1939
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
741	Fancy, No. 2584	L.	88.40	.20	—	—	90.00	1/1939
	H. F. Davis Hardware Co., Merrimac	F.	89.69	—	10.26	.05	91.00	7/1939
	PEAS							
	ARTHUR R. CONE, Buffalo, N. Y.							
950	Canada 40-44	L.	98.00	—	—	—	92.00	1/1939
	Sunshine Feed Store, Greenfield	F.	99.38	—	.18	.44	93.00	8/1939
	WM. G. SCARLET & CO., Baltimore, Md.							
421	Canada, No. 3328	L.	98.00	.20	—	—	90.00	1/1939
	C. P. Washburn Co., Middleboro	F.	99.94	—	.06	—	99.00	8/1939
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
684	Canada, No. 9559	L.	99.00	—	—	—	92.00	2/1939
	Borden Grain Co., Taunton	F.	99.85	—	.05	.10	98.00	8/1939
	F. H. WOODRUFF & SONS, Milford, Conn.							
894	Canada	L.	*	—	—	—	*	**
	Fitchburg Hardware Co., Fitchburg	F.	99.27	—	.44	.29	81.00	8/1939

RAPE

	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.							
856	Dwarf Essex	L.	99.50	.05	.45	Trace	90.00	12/1938
	Eastern States Farmers' Exchange, Brockton	F.	99.83	—	.17	—	88.00	8/1939
	ROSS BROS. CO., Worcester, Mass.							
1170	Dwarf Essex	L.	99.75	.01	—	—	93.00	3/1939
	Ross Bros. Co., Worcester	F.	99.89	.02	.09	—	96.00	7/1939
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
898	Dwarf Essex, No. 9315	L.	99.19	.07	—	—	91.00	2/1939
	United Cooperative Farmers, Inc., Fitchburg	F.	99.10	.07	.83	—	85.00	8/1939

REDTOP

	COMSTOCK, FERRE & CO., Wethersfield, Conn.							
1115	Redtop, No. 1263	L.	95.00	.40	—	—	93.00	1/1939
	O. B. Parks Co., Westfield	F.	96.83	.50	2.57	.10	97.00	7/1939
	ARTHUR R. CONE, Buffalo, N. Y.							
722	Redtop Arco—30-65	L.	98.08	.12	—	—	93.00	1/1939
	Sunshine Feed Store, Bridgewater	F.	97.80	.15	2.05	—	94.00	7/1939
	ALBERT DICKINSON CO., Chicago, Ill.							
716	Redtop, No. 041225	L.	92.50	*	—	—	90.00	11/1936
	Farm Service Store, Taunton	F.	91.81	.58	7.46	.15	90.00	8/1939
891	Redtop, No. 41255-61	L.	90.10	.80	7.30	1.80	90.00	3/1936
	Fitchburg Hardware Co., Fitchburg	F.	89.54	.51	7.37	2.58	93.00	7/1939
928	Redtop, No. 41574—Grown in Ill.	L.	96.00	.60	3.20	.20	91.00	11/1938
	Community Feed Store, So. Deerfield	F.	95.41	.81	3.60	.18	95.00	7/1939
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.							
853	Solid Fancy	L.	96.00	.50	3.00	.50	95.00	12/1938
	Eastern States Farmers' Exchange, Brockton	F.	96.99	.38	2.44	.19	95.00	8/1939
	THOMAS W. EMERSON CO., Boston, Mass.							
778	Fancy Redtop	L.	85.00	.70	—	—	85.00	1/1939
	Haverhill Coal & Grain Co., Haverhill	F.	85.50	.33	14.00	.17	84.00	8/1939
	THOMAS J. GREY CO., Boston, Mass.							
998	Redtop	L.	96.40	.20	3.20	—	92.00	5/1939
	Thomas J. Grey Co., Boston	F.	98.20	.43	1.28	.09	90.00	7/1939

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test
	REDTOP—Concluded							
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.							
910	Redtop, Fancy No. 1793	L.	97.30	.80	1.90	—	96.00	2/1939
	Joseph Harris Co., Inc., Cambridge	F.	97.87	.45	1.68	—	94.00	7/1939
	CHARLES C. HART SEED CO., Wethersfield, Conn.							
984	Redtop (7)	L.	98.00	.11	1.78	.11	92.50	11/1938
	Waskiewicz Bros., Hadley	F.	85.96	1.07	12.76	.21	87.00	8/1939
	JOHN D. LYON SEED CO., Belmont, Mass.							
1034	Redtop	L.	98.00	.20	1.80	—	97.00	12/1938
	John D. Lyon Seed Co., Belmont	F.	98.39	.10	1.46	.05	92.00	7/1939
	WM. G. SCARLET & CO., Baltimore, Md.							
790	Redtop, No. 5004	L.	93.00	.90	—	—	90.00	3/1939
	Uxbridge Hardware Co., Uxbridge	F.	96.23	.16	3.61	—	91.00	8/1939
	STANFORD SEED CO., Buffalo, N. Y.							
627	Redtop, Fancy No. 4414	L.	92.34	.60	—	—	90.00	**
	Ware Grain & Coal Co., Ware	F.	93.45	.40	6.15	—	90.00	8/1939
943	Redtop, No. 4387	L.	93.62	.40	—	—	92.00	3/1939
	W. N. Potter Grain Stores, Greenfield	F.	92.45	.38	7.04	.13	91.00	8/1939
	JOHN B. VARICK CO., Manchester, N. H.							
885	Redtop, P. T. Pine Tree	L.	95.00	*	—	—	90.00	**
	H. V. Doolittle, Ashby	F.	96.79	.22	2.94	.05	96.00	8/1939
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
128	Redtop, Pan American No. 4299	L.	94.00	1.24	—	—	90.00	2/1939
	H. S. Chadbourne & Co., Milford	F.	94.60	1.46	3.79	.15	94.00	8/1939
256	Redtop, Pan American No. 4299	L.	94.00	1.24	—	—	90.00	2/1939
	Ryder Grain Co., Bridgewater	F.	96.03	1.28	2.57	.12	96.00	8/1939
673	Redtop, No. 4301	L.	94.01	1.36	—	—	92.00	1/1939
	Farm Service Store, Attleboro	F.	94.02	1.64	3.97	.37	95.00	8/1939
709	Redtop, Eureka No. 4308	L.	97.68	.50	—	—	92.00	2/1939
	Stanley Wood Grain Co., Taunton	F.	97.50	.62	1.83	.05	96.00	8/1939

ROUGH STALKED MEADOW GRASS

	COLLINS SEED SERVICE CO., Boston, Mass.							
1094	Rough Stalked Meadow Grass	L.	90.00	.50	9.50	—	90.00	10/1938
	Collins Seed Service Co., Boston	F.	89.72	.77	9.41	.10	89.00	6/1939
	THOMAS J. GREY CO., Boston, Mass.							
1002	Rough Stalked Meadow Grass	L.	91.77	.19	—	—	86.00	1/1939
	Thomas J. Grey Co., Boston	F.	90.00	1.11	8.80	.09	77.00	7/1939
	JOHN D. LYON SEED CO., Belmont, Mass.							
1033	Rough Stalked Meadow Grass	L.	90.22	.35	9.43	—	90.00	2/1939
	John D. Lyon Seed Co., Belmont	F.	86.62	.48	12.71	.19	81.00	7/1939

RYE

	EASTERN STATES FARMERS' EXCHANGE, Springfied, Mass.							
858	Spring (6)	L.	97.00	.10	2.70	.20	90.00	12/1938
	Eastern States Farmers' Exchange, Brockton	F.	99.62	—	.33	.05	92.00	8/1939
	THOMAS W. EMERSON CO., Boston, Mass.							
715	Spring (6)	L.	98.75	.08	—	—	90.00	*/1938
	Farm Service Store, Taunton	F.	98.47	.15	1.24	.14	89.00	8/1939
	WM. G. SCARLET & CO., Baltimore, Md.							
420	Seed Rye, No. 472 (6)	L.	97.50	.50	1.10	1.10	90.00	3/1939
	C. P. Washburn Co., Middleboro	F.	98.48	—	.44	1.08	94.00	8/1939
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
685	Spring (6)	L.	98.00	*	—	—	90.00	2/1939
	Borden Grain Co., Taunton	F.	98.42	.04	.38	1.16	89.00	8/1939

RYEGRASS

	COLLINS SEED SERVICE CO., Boston, Mass.							
1084	Pacey's Ryegrass (1)	L.	98.00	*	—	—	85.90	**
	Collins Seed Service Co., Boston	F.	99.19	.52	.10	.19	82.00	7/1939
	16 English Plantain per oz. found							
1085	Italian Ryegrass	L.	98.00	*	—	—	85.90	**
	Collins Seed Service Co., Boston	F.	98.99	.86	.09	.06	83.00	7/1939
	COMSTOCK, FERRE & CO., Wethersfield, Conn.							
1160	Domestic, No. 1263 Ryegrass	L.	99.35	.30	—	—	94.00	1/1939
	Foster Farrar Co., Northampton	F.	99.13	.35	.53	—	90.00	7/1939

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test
	RYEGRASS—Concluded							
	ARTHUR R. CONE, Buffalo, N. Y.							
864	Domestic, No. 39-40 Ryegrass	L.	99.21	.75	—	—	88.00	1/1939
	Sunshine Feed Store, Ayer	F.	98.55	1.16	1.19	.10	88.00	7/1939
	THOMAS J. GREY CO., Boston, Mass.							
1000	Perennial Ryegrass (†)	L.	99.60	.10	.24	—	96.00	12/1938
	Thomas J. Grey Co., Boston	F.†	99.64	.13	.20	.03	99.00	7/1939
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
132	English Perennial, No. 4830	L.	99.04	.55	—	—	90.00	1/1939
	H. S. Chadbourne & Co., Milford	F.	99.44	.40	.04	.12	88.00	7/1939
1150	Domestic, No. 4838	L.	99.00	.34	—	—	90.00	3/1939
	Frank Howard, Inc., Pittsfield	F.	98.01	.27	1.69	.03	91.00	7/1939
	SOY BEANS							
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.							
850	Dunfield Variety	L.	99.25	—	.70	.05	80.00	12/1938
	Eastern States Farmers' Exchange, Brockton	F.	99.78	—	.22	—	92.00	8/1939
	ROSS BROS. CO., Worcester, Mass.							
1172	Manchu	L.	99.50	—	—	—	99.00	4/1939
	Ross Bros. Co., Worcester	F.	99.95	—	.05	—	95.00	8/1939
	WM. G. SCARLET & CO., Baltimore, Md.							
417	Wilson, No. 15954	L.	98.00	.50	—	—	85.00	3/1938
	C. P. Washburn Co., Middleboro	F.	99.65	—	.32	.03	80.00	8/1939
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
828	Black Wilson	L.	99.00	—	—	—	90.00	2/1939
	H. K. Webster Co., Lawrence	F.	99.70	—	.12	.18	92.00	8/1939
	SUDAN GRASS							
	ARTHUR R. CONE, Buffalo, N. Y.							
953	Sudan Grass, No. 70-36	L.	97.49	.03	—	—	82.00	1/1938
	Sunshine Feed Store, Greenfield	F.	97.28	.02	2.19	.51	78.00	7/1939

	ROSS BROS. CO., Worcester, Mass.							
800	Sudan Grass	L.	99.75	.05	—	—	90.00	1/1938
	Harry Seder, Webster	F.	99.60	—	.27	.13	88.00	7/1939
	TIMOTHY							
	APOTHECARIES HALL CO., Waterbury, Conn.							
899	Fancy W E	L.	99.60	.05	—	—	90.00	11/1938
	United Cooperative Farmers, Inc., Fitchburg	F.	99.82	.01	.10	.07	90.00	8/1939
	ARTHUR R. CONE, Buffalo, N. Y.							
723	Arco 10-178	L.	99.70	.02	—	—	95.00	2/1939
	Sunshine Feed Store, Bridgewater	F.	99.51	.03	.35	.11	92.00	8/1939
	ALBERT DICKINSON CO., Chicago, Ill.							
895	Pine Tree, No. 69879	L.	99.65	.05	—	—	93.00	3/1937
	Fitchburg Hardware Co., Fitchburg	F.	99.71	.02	.17	.10	87.00	8/1939
929	Timothy, No. 66414	L.	99.65	.05	.20	.10	93.00	12/1938
	Community Feed Store, South Deerfield	F.	99.77	.02	.18	.03	86.00	8/1939
	DURYEA SEED CO., INC., New York City							
917	Timothy, No. 24478	L.	99.65	.05	—	—	90.00	11/1938
	Community Feed Store, Worcester	F.	99.93	—	.05	.02	94.00	8/1939
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.							
1112	Timothy, Grown in Midwest	L.	99.50	.15	.25	.10	90.00	12/1938
	Templeton Farmers' Cooperative Association, Templeton	F.	99.66	—	.26	.08	92.00	8/1939
	THOMAS W. EMERSON CO., Boston, Mass.							
236	Timothy	L.	99.60	—	—	—	92.00	*/1938
	Farm Service Co., No. Abington	F.	99.71	—	.25	.04	96.00	8/1939
	J. J. H. GREGORY & SON, Marblehead, Mass.							
1070	Timothy	L.	99.60	.05	—	—	90.00	3/1939
	J. J. H. Gregory & Son, Marblehead	F.	99.61	.04	.19	.16	71.00	8/1939
	THOMAS J. GREY CO., Boston, Mass.							
999	Timothy	L.	99.57	.09	—	—	91.00	1/1939
	Thomas J. Grey Co., Boston	F.	99.65	.03	.23	.09	92.00	8/1939
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.							
908	Fancy, No. 1675	L.	99.69	.08	.15	.08	91.00	1/1939
	Joseph Harris Co., Inc., Cambridge	F.	99.57	.08	.24	.11	91.00	8/1939

†Domestic Ryegrass.

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test
	TIMOTHY—Concluded							
	WM. G. SCARLET & CO., Baltimore, Md.							
738	Timothy, No. 2230	L.	99.60	.20	—	—	90.00	1/1937
	C. P. Washburn Co., Halifax	F.	99.79	.02	.16	.03	71.00	8/1939
	STANFORD SEED CO., Buffalo, N. Y.							
628	Timothy, No. 6804	L.	99.60	.05	—	—	92.00	3/1939
	Ware Grain & Coal Co., Ware	F.	99.52	.06	.36	.06	92.00	8/1939
944	Timothy, No. 4689	L.	99.60	.05	—	—	92.50	3/1939
	W. N. Potter Grain Store, Greenfield	F.	99.71	.03	.16	.10	89.00	8/1939
1132	Timothy, No. 4691	L.	99.65	.05	—	—	93.00	3/1939
	E. J. Adams & Co., Gt. Barrington	F.	99.64	.02	.25	.09	87.00	8/1939
	JOHN B. VARICK CO., Manchester, N. H.							
886	Timothy	L.	*	*	—	—	*	**
	H. V. Doolittle, Ashby	F.	99.68	.06	.18	.08	84.00	8/1939
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
131	Pan American	L.	99.70	.04	—	—	90.00	1/1939
	H. S. Chadbourne & Co., Milford	F.	99.56	.07	.25	.12	94.00	8/1939
260	Pan American	L.	99.70	.04	—	—	90.00	**
	Eastern Grain Co., Bridgewater	F.	99.56	.08	.26	.10	90.00	8/1939
654	Pan American	L.	99.70	.04	—	—	90.00	1/1939
	W. C. S. Wood, Norton	F.	99.73	.03	.19	.05	89.00	8/1939
675	Pan American, No. 685	L.	99.60	.04	—	—	90.00	2/1939
	Farm Service Co., Attleboro	F.	99.59	.07	.17	.17	96.00	8/1939
983	Timothy	L.	99.65	.05	.15	.15	96.00	1/1939
	Waskiewicz Bros., Hadley	F.	99.58	.05	.23	.14	94.00	8/1939
	VETCH							
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.							
854	Pearl	L.	99.00	.20	.60	.20	82.00	12/1938
	Eastern States Farmers' Exchange, Brockton	F.	99.50	—	.21	.29	80.00	7/1939

	WM. G. SCARLET & CO., Baltimore, Md.							
389	Hairy, Lot No. 2259	L.	98.00	.55	—	.60	85.00-5	8/1938
	Continental Nurseries, Franklin	F.	98.50	.16	.05	1.29	74.00-18	8/1939
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
711	Winter, No. 9443	L.	98.85	.20	—	—	80.00-10	8/1938
	Stanley Wood Grain Co., Taunton	F.	98.91	.13	.04	.92	80.00-12	7/1939
	WHEAT							
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.							
713	Selected Winter (6)	L.	98.50	.30	.85	.35	90.00	7/1938
	Stanley Wood Grain Co., Taunton	F.	98.79	.05	1.06	.10	90.00	8/1939
	THOMAS W. EMERSON CO., Boston, Mass.							
523	Spring (6)	L.	99.68	—	—	—	97.00	1/1939
	United Cooperative Society, Maynard	F.	99.94	—	.06	—	97.00	8/1939
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.							
714	Dawson Winter	L.	98.00	*	—	—	90.00	8/1938
	Stanley Wood Grain Co., Taunton	F.	99.62	.04	.34	—	97.00	8/1939

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS

Lab. No.	Wholesale Distributor, Dealer and Place Collected, Brand Name of Mixture, and Ingredients of Each Mixture	Ingredients, % Label	Ingredients, % Found	Germination, % Label	Germination, % Found		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Date of Test
	MIXTURES										
	SECTION 261B—Not More than Two Kinds of Agricultural Seed										
	COLLINS SEED SERVICE CO., Boston, Mass.										
1083	Oregon Fescue*—Found to he a Mixture					L.	88.00	1.00	11.00	—	*/1937
	Collins Seed Service Co., Boston					F.	73.10	13.32	13 06	.52	7/1939
	Ingredients: Oregon Fescue (Festuca myuros)	88.00	56.32	80.00	95.00						
	Domestic Ryegrass (3)	—	16.78	—	72.00						
	(12 English Plantain and 6 Canada Thistle seed per oz. found (1)										
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.										
913	Timothy and Alsike Clover Mixture, No. 1794					L.	99.17	.07	.23	.03	2/1939
	Joseph Harris Co., Inc., Cambridge					F.	99.43	.09	.17	.31	7/1939
	Ingredients: Timothy	71.90	75.18	91.00	90.00						
	Alsike Clover	27.27	24.25	87.00-10	88.00-9						
	STANFORD SEED CO., Buffalo, N. Y.										
980	Timothy and Alsike Clover Mixture, No. 7283					L.	96.95	.49	—	—	3/1939
	W. N. Potter Grain Stores, Hadley					F.	97.53	.41	.83	1.23	7/1939
	Ingredients: Timothy	76.25	74.43	91.00	96.00						
	Alsike Clover	20.70	23.10	78.00	68.00-29						
	(5 English Plantain seed per oz. found) (1)										
	SPECIAL SEED MIXTURES										
	SECTION 261C—More than Two Kinds of Agricultural Seeds										
	BARTLETT & DOW CO., Lowell, Mass.										
560	Fort Hill Lawn Mixture					L.	—	.48	6.35	—	8/1938
	Bartlett & Dow Co., Lowell					F.	93.80	.37	5.83	—	5/1939
	Ingredients: Kentucky Bluegrass	40.00	35.40	80.00	78.00						
	Redtop	42.00	39.42	90.00	94.00						
	White Clover	8.00	8.10	80.00	73.00-18						
	Chewing's Fescue	3.00	2.83	80.00	61.00						
	Domestic Ryegrass (4)	7.00	—	90.00							
	Perennial Ryegrass (3)	—	8.05		97.00						

	COLLINS SEED SERVICE CO., Boston, Mass.										
1082	Sheep's Fescue*—Found to be a Mixture					L.	90.00	.75	*	23.00	11/1937
	Collins Seed Service Co., Boston					F.	85.26	.08	11.49	3.17	7/1939
	Ingredients: Canada Bluegrass	*	4.67	*	91.00						
	Redtop	*	7.13	*	92.00						
	Timothy	*	6.42	*	84.00						
	Sheep's Fescue	*	60.78	*	32.00						
	Italian Ryegrass	*	6.26	*	81.00						
	(Average Germination)			90.00							
	COMSTOCK, FERRE & CO., Wethersfield, Conn.										
345	Quick Green Mixture, No. 356					L.	—	.35	5.63	—	1/1939
	Crossman's Hardware Co., Needham					F.	95.27	.59	4.06	.08	7/1939
	Ingredients: Kentucky Bluegrass	9.02	8.63	82.00	81.00						
	Redtop	33.49	—	91.00	—						
	Timothy	16.91	18.28	90.00	89.00						
	White Dutch Clover	2.92	3.26	75.00	88.00 5						
	Astoria Bent	1.97	—	90.00	—						
	Domestic Ryegrass	29.71	29.01	92.00	91.00						
	Agrostis spp. (Redtop and Colonial Bent)	—	36.09	—	94.00						
346	Superfine Mixture with Clover, No. 326					L.	—	.17	2.26	—	1/1939
	Crossman's Hardware Co., Needham					F.	97.82	.19	1.90	.09	5/1939
	Ingredients: Kentucky Bluegrass	51.23	51.90	78.00	91.00						
	Redtop	28.82	—	93.00	—						
	White Dutch Clover	3.90	4.62	75.00	88.00 7						
	Chewing's Fescue	9.20	9.00	70.00	49.00						
	Astoria Bent	4.42	—	90.00	—						
	Agrostis spp. (Redtop and Colonial Bent)	—	32.30	—	89.00						
	THE DOUGHTEN SEED CO., Jersey City, N. J.										
683	Greendale Special Lawn Mixture					L.	—	1.31	14.83	.62	4/1938
	F. Crossman Sons, Inc., Taunton					F.	82.67	.93	15.74	.66	7/1939
	Ingredients: Kentucky Bluegrass	1.00	1.02	70.00	80.00						
	Redtop	11.12	9.04	75.00	84.00						
	Timothy	45.54	48.47	90.00	88.00						
	White Clover	1.00	.96	80.00	85.00-7						
	Perennial Ryegrass	24.58	23.18	85.00	87.00						

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Dealer and Place Collected, Brand Name of Mixture, and Ingredients of Each Mixture	Ingredients, % Label	Ingredients, % Found	Germination, % Label	Germination, % Found		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Date of Test
	SPECIAL SEED MIXTURES—Continued										
	DURYEA SEED CO., INC., New York City										
788	Choice Central Park Lawn Mixture					L.	—	1.00	15.00	—	1/1939
	Farm & Garden Supply Co., Uxbridge					F.	85.47	.84	12.94	.75	5/1939
	Ingredients: Domestic Ryegrass	24.00	24.77	90.00	92.00						
	Kentucky Bluegrass	16.00	16.20	75.00	80.00						
	Redtop	35.00	35.10	85.00	84.00						
	White Clover	2.00	2.32	80.00	82.00						
	Chewing's Fescue(†)	7.00	—	80.00	—						
	Festuca spp.	—	7.08	—	16.00						
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.										
849	Hayland, No. 2 Mixture					L.	98.00	.50	1.25	.25	12/1938
	Eastern States Farmers' Exchange, Brockton					F.	99.20	.12	.57	.11	7/1939
	Ingredients: Redtop	14.40	14.15	95.00	97.00						
	Timothy	29.79	28.20	90.00	92.00						
	Medium Red Clover	24.80	26.48	80.00–15	90.00–6						
	Alsike Clover	29.55	30.37	75.00–20	83.00–12						
	(Average germination)			80.00–10							
855	Shady Nook Lawn Mixture					L.	95.00	.50	4.25	.25	12/1938
	Eastern States Farmers' Exchange, Brockton					F.	96.15	.26	3.51	.08	7/1939
	Ingredients: Kentucky Bluegrass	20.00	17.55	80.00	73.00						
	Rough Stalked Meadow Grass	30.00	30.31	85.00	83.00						
	Redtop, Fancy Solid	10.00	10.19	95.00	97.00						
	Chewing's Fescue	30.00	28.51	75.00	79.00						
	Domestic Ryegrass	10.00	9.59	88.00	94.00						
	(Average germination)			80.00							
	THOMAS W. EMERSON CO., Boston, Mass.										
739	Emerson's Special Mixed Lawn Seed					L.	—	.28	3.00	—	1/1939
	Kelley's Store, North Easton					F.	98.05	.27	1.59	.09	5/1939
	Ingredients: Kentucky Bluegrass	21.00	16.60	92.00	89.00						
	Rough Stalked Meadow Grass	3.34	3.44	90.00	94.00						
	Redtop	60.23	—	94.00	—						
	White Clover	4.28	4.57	90.00	84.00–14						
	Chewing's Fescue	3.47	3.26	90.00	84.00						
	Colonial Bent	4.40	—	93.5	—						
	Velvet Bent	*	—	88.00	—						
	Agrostis spp. (Redtop, Colonial Bent, Velvet Bent)	—	70.18	—	92.00						

	EMPIRE SEED CO., Fredonia, N. Y.										
1110	Mixture, Lawn Grass					L.	—	*	*	—	**
	Templeton Farmer's Cooperative Association, Templeton					F.	74.58	.85	24.19	.38	7/1939
	Ingredients: Blue Grass (6)	*	—	*	—						
	Kentucky Bluegrass	*	33.60	*	56.00						
	Redtop	*	19.45	*	75.00						
	Timothy	*	1.23	*	15.00						
	White Clover	*	5.40	*	65.00 10						
	Ryegrass (6)	*	—	*	—						
	Domestic Ryegrass	—	9.87	—	84.00						
	Meadow Fescue (3)	—	5.03	—	70.00						
	(5 English Plantain Seed per oz. found) (1)										
	FERRY-MORSE SEED CO., Detroit, Mich.										
613	Lawn Grass Mixture					L.	—	.21	8.72	.21	9/1938
	Chandler Hardware Co., Worcester					F.	90.70	.66	8.45	.19	7/1939
	Ingredients: Kentucky Bluegrass	36.86	37.46	84.00	80.00						
	Redtop, Fancy	35.52	32.67	90.00	97.00						
	White Dutch Clover	4.72	4.04	81.00	80.00–18						
	Domestic Ryegrass	13.76	16.53	92.00	92.00						
	FIVE STAR SEED CO., Jersey City, N. J.										
488	Continental Lawn Seed Mixture					L.	—	1.50	19.72	—	1/1939
	Chelsea Hardware Store, Chelsea					F.	82.92	.93	15.76	.39	7/1939
	Ingredients: Kentucky Bluegrass	6.02	5.95	65.00	87.00						
	Redtop	7.02	7.81	75.00	65.00						
	Timothy	55.84	58.50	75.00	64.00						
	Domestic Ryegrass	9.90	10.66	90.00	95.00						
	FOSTER FARRAR CO., Northampton, Mass.										
1161	Special Mixture Lawn Seed					L.	—	.50	10.50	—	3/1939
	Foster Farrar Co., Northampton					F.	89.54	.10	10.16	.20	7/1939
	Ingredients: Kentucky Bluegrass	41.00	41.40	80.00	77.00						
	Redtop	29.00	—	90.00	—						
	White Clover	2.00	2.04	85.00	85.00–8						
	Chewing's Fescue	9.00	9.60	80.00	73.00						
	Astoria Bent	8.00	—	90.00	—						
	Agrostis spp. (Redtop and Colonial Bent)	—	36.50	—	91.00						

(†) Not pure Chewing's Fescue.

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Dealer and Place Collected, Brand Name of Mixture, and Ingredients of Each Mixture	Ingredients, % Label	Ingredients, % Found	Germination, % Label	Germination, % Found		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Date of Test
	SPECIAL SEED MIXTURES—Continued										
	FRASER'S, Wellesley, Mass.										
1173	Grassmaker for Sunny Acres					L.	—	.30	2.75	—	1/1939
	Fraser's, Wellesley					F.	96.45	.23	3.16	.16	7/1939
	Ingredients: Kentucky Bluegrass	29.10	27.55	88.00	81.00						
	Redtop	24.25	—	90.00	—						
	Chewing's Fescue	29.10	27.16	75.00	71.00						
	Colonial Bent	14.50	—	90.00	—						
	Agrostis spp. (Redtop and Colonial Bent)	—	41.74	—	96.00						
	FREDONIA SEED CO., Fredonia, N. Y.										
445	Veltex Lawn Seed Mixture					L.	—	.90	14.75	—	1/1939
	W. R. Armstrong, Attleboro					F.	82.07	.78	16.95	.20	7/1939
	Ingredients: Kentucky Bluegrass	15.40	14.78	70.00	73.00						
	Redtop	20.73	22.35	75.00	74.00						
	Timothy	21.35	20.54	80.00	53.00						
	White Clover	5.00	5.42	80.00	69.00-8						
	Domestic Ryegrass	21.87	18.98	80.00	78.00						
	GARFIELD WILLIAMSON CO., INC., New York City										
529	Green Circle Mixture					L.	—	1.25	18.60	—	2/1939
	Bellingham Hardware Co., Weymouth					F.	81.24	.75	17.17	.84	6/1939
	Ingredients: Redtop, Unhulled	12.00	13.31	80.00	73.00						
	Timothy	48.55	49.95	90.00	71.00						
	Domestic Ryegrass	19.60	17.98	90.00	94.00						
	(12 English Plantain Seed per oz. found) (1)										
530	Nu-True Shady Mixture					L.	—	.10	19.80	—	1/1939
	Bellingham Hardware Co., Weymouth					F.	83.67	.28	15.18	.87	5/1939
	Ingredients: Kentucky Bluegrass (5)	8.00	16.63	80.00	79.00						
	Redtop, Unhulled	15.00	—	65.00	—						
	New Zealand Chewing's Fescue (4)	9.80	—	60.00	—						
	Domestic Ryegrass	29.40	25.88	90.00	96.00						
	Redtop, Fancy	9.00	—	90.00	—						
	Poa Trivialis (5)	8.00	10.22	80.00	61.00						
	Redtop (5)	—	30.94	—	77.00						
	THOMAS J. GREY CO., Boston, Mass.										
1003	Special Recleaned Lawn Seed					L.	93.20	.20	6.60	—	1/1939
	Thomas J. Grey Co., Boston					F.	93.01	.38	6.56	.05	6/1939

	Ingredients: Kentucky Bluegrass	30.10	34.98	80.00	70.00						
	Redtop, Recleaned	48.30	53.04	98.00	93.00						
	White Clover	2.10	2.05	96.00	78.00-19						
	Chewing's Fescue	12.70	2.94	77.00	97.00						
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.										
907	Harris' Lawn Grass Seed for Shady Spots					L.	—	.50	6.00	—	1/1939
	Joseph Harris Co., Inc., Cambridge					F.	93.70	.37	5.11	.82	5/1939
	Ingredients: Kentucky Bluegrass (5)	25.00	32.85	94.00	88.00						
	Rough Stalked Meadow Grass	50.00	31.84	90.00	81.00						
	Redtop	15.00	17.70	94.00	96.00						
	Chewing's Fescue	10.00	11.31	84.00	69.00						
	CHARLES C. HART SEED CO., Wethersfield, Conn.										
237	Evergreen Lawn Seed Blend					L.	—	*	*	—	1/1939
	Curtis Hardware & Provision Co., No. Abington					F.	92.43	.52	7.05	—	5/1939
	Ingredients: Kentucky Bluegrass	40.58	40.78	*	59.00						
	Redtop, Fancy	23.00	25.78	80.00	92.00						
	White Dutch Clover	1.97	2.09	87.00	83.00-13						
	Domestic Ryegrass	25.98	23.78	88.00	90.00						
238	Competition Lawn Seed Blend					L.	92.78	.66	6.56	—	**
	Curtis Hardware & Provision Co., No. Abington					F.	93.13	.50	6.28	.09	6/1939
	Ingredients: Kentucky Bluegrass	7.17	8.18	*	62.00						
	Redtop, Fancy	14.20	16.09	90.00	97.00						
	Timothy	39.86	40.05	96.00	94.00						
	White Clover	.98	1.45	*	78.00-15						
	Domestic Ryegrass	29.97	27.36	90.00	98.00						
	J. OLIVER JOHNSON CO., Chicago, Ill.										
246	West Parks Lawn Seed					L.	—	1.00	13.24	—	**
	State Supply Co., Boston					F.	82.70	1.68	14.95	.67	7/1939
	Ingredients: Redtop	13.48	13.08	90.00	85.00						
	Timothy	61.38	59.05	90.00	78.00						
	White Clover	1.00	1.25	90.00	78.00-15						
	American Ryegrass (6)	9.90	—	90.00	—						
	Domestic Ryegrass	—	9.32	—	92.00						
	(52 English Plantain seed per oz. found) (1)										

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab No.	Wholesale Distributor, Dealer and Place Collected, Brand Name of Mixture, and Ingredients of Each Mixture	Ingredients, % Label	Ingredients, % Found	Germination, % Label	Germination, % Found		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Date of Test
	SPECIAL SEED MIXTURES—Continued										
	LAKE SHORE SEED CO., Dunkirk, N. Y.										
414	Lawn Grass Mixture					L.	—	1.44	13.85	1.00	3/1938
	W. G. Moses, Bridgewater.					F.	62.57	1.63	34.07	1.73	5/1939
	Ingredients: Redtop (5)	15.52	20.63	80.00	59.00						
	Timothy	27.07	19.10	86.00	53.00						
	White Clover (5)	1.90	7.29	75.00–23	57.00–9						
	Domestic Ryegrass	24.87	11.13	97.00	97.00						
	Meadow Fescue	14.35	4.42	92.00	68.00						
	(13 English Plantain seed per oz. found) (1)										
	JOHN D. LYON SEED CO., Belmont, Mass.										
893	Bent and Fescue Mixture					L.	91.50	.75	7.75	—	1/1939
	Fitchburg Hardware Co., Fitchburg					F.	90.08	.38	9.35	.19	6/1939
	Ingredients: Kentucky Bluegrass	17.00	16.75	80.00	75.00						
	Redtop, Fancy	57.04	—	90.00	—						
	Chewing's Fescue, New Zealand	9.80	10.52	70.00	28.00						
	Colonial Bent	7.84	—	90.00	—						
	Agrostis spp. (Redtop and Colonial Bent)	—	62.81	—	84.00						
	THE PAGE SEED CO., Greene, N. Y.										
614	Page's Marvelawn Li. No. 4239					L.	92.96	.65	6.24	.15	2/1939
	John F. Robinson & Co., Ware					F.	94.02	.26	5.63	.09	6/1939
	Ingredients: Kentucky Bluegrass (5)	10.05	13.02	80.00	77.00						
	Rough Stalked Meadow Grass	14.55	13.72	92.00	73.00						
	Redtop	26.90	25.86	87.00	86.00						
	Timothy	15.91	16.45	93.00	85.00						
	White Clover	6.29	6.24	90.00	80.00–9						
	Meadow Fescue	5.54	4.66	88.00	88.00						
	Perennial Ryegrass	13.82	14.07	91.00	83.00						
	PEDIGREED SEED CO., New York City										
407	Bowling Green Mixture					L.	—	.86	8.92	—	2/1939
	Monroe's Seed Market, Attleboro.					F.	88.20	.80	10.60	.40	4/1939
	Ingredients: Kentucky Bluegrass	*	37.90	*	65.00						
	Redtop, Fancy	*	37.10	*	93.00						
	White Clover	5.00	6.70	*	84.00-8						
	Chewing's New Zealand Fescue	7.00	6.50	*	6.00						

612	Bowling Green Mixture						L.	—	.86	8.92	—	3/1939
	Chandler Hardware Co., Worcester						F.	88.41	.87	10.43	.29	5/1939
	Ingredients: Kentucky Bluegrass	38.56	36.33	80.00	93.00							
	Redtop, Fancy	39.56	40.00	90.00	92.00							
	White Clover	5.00	6.38	80.00	73.00	-14						
	New Zealand Chewing's Fescue (†)	7.00	—	75.00	—							
	Festuca spp.	—	5.70	—	41.00							
	(6 English Plantain Seed per oz. found) (1)											
	PERRY SEED CO., Boston, Mass.											
1104	Franklin Park Lawn Seed						L.	90.00	.80	9.20	—	2/1939
	Perry Seed Co., Boston						F.	91.02	.68	8.20	.10	6/1939
	Ingredients: Kentucky Bluegrass	24.00	23.43	80.00	63.00							
	Redtop, Fancy	57.00	58.30	90.00	91.00							
	White Clover	4.50	4.98	*	66.00	17						
	Chewing's Fescue	4.50	4.31	*	96.00							
	I. L. RADWANER SEED CO., INC., New York City											
531	Central Park Prime Grass Mixture						L.	—	1.40	19.51	1.38	1/1939
	Gofkami's Store, Inc., Newburyport						F.	65.39	5.94	28.36	.31	7/1939
	Ingredients: Kentucky Bluegrass	3.20	3.75	80.00	43.00							
	Redtop (5)	24.00	31.48	65.00	78.00							
	Timothy	44.55	24.06	80.00	80.00							
	Italian Ryegrass (4)	5.96	—	85.00	—							
	Domestic Ryegrass (3)	—	6.10	—	89.00							
	JEROME B. RICE SEED CO., Cambridge, N. Y.											
1185	Rice's Fine Lawn Grass Mixture						L.	—	.83	11.62	—	1/1939
	Mackey & Meade Co., Inc., Brookline						F.	90.99	.77	8.05	.19	7/1939
	Ingredients: Kentucky Bluegrass	41.00	40.79	80.00	87.00							
	Redtop	27.00	28.12	90.00	86.00							
	White Clover	4.85	5.74	85.00	69.00	-19						
	Domestic Ryegrass	14.70	16.34	90.00	98.00							
	ROSS BROS. CO., Worcester, Mass.											
784	Truegreen Lawn Seed						L.	94.37	.24	3.95	—	1/1939
	W. C. Matteson, Hardware, Blackstone						F.	94.40	.38	3.96	1.26	7/1939
	Ingredients: Kentucky Bluegrass	50.99	50.19	87.00	86.00							
	Redtop	28.46	29.32	92.00	96.00							
	Domestic Ryegrass	14.92	14.89	94.00	95.00							

(†) Not a pure Chewing's Fescue.

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Dealer and Place Collected, Brand Name of Mixture, and Ingredients of Each Mixture	Ingredients, % Label	Ingredients, % Found	Germination, % Label	Germination, % Found		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Date of Test
	SPECIAL SEED MIXTURES—Continued										
	WM. G. SCARLET & CO., Baltimore, Md.										
254	Velvet Lawn Seed Mixture					L.	—	*	*	—	2/1939
	A. G. Patch Co., Boston					F.	87.24	1.08	11.50	.18	5/1939
	Ingredients: Kentucky Bluegrass	20.00	17.66	80.00	74.00						
	Redtop	20.00	20.30	90.00	90.00						
	Timothy	14.00	17.48	90.00	90.00						
	White Clover	5.00	5.98	85.00	79.00	18					
	Fescue (6)	5.00	—	90.00	—						
	Ryegrass (6)	20.00	—	90.00	—						
	Meadow Fescue	—	5.80	—	84.00						
	Domestic Ryegrass	—	20.02	—	90.00						
	(6 English Plantain Seed per oz. found) (1)										
	SEARS, ROEBUCK & CO., Chicago, Ill.										
1107	Superfine Lawn Seed Mixture					L.	—	1.00	9.25	1.50	1/1939
	Sears, Roebuck & Co., Worcester					F.	90.52	.83	8.28	.37	7/1939
	Ingredients: Kentucky Bluegrass	36.75	35.23	80.00	73.00						
	Redtop	27.00	—	90.00	—						
	Creeping Bent (4)	4.90	—	90.00	—						
	Domestic Ryegrass	19.60	20.88	90.00	91.00						
	Agrostis spp. (Redtop and Colonial Bent) (3)	—	34.41	—	92.00						
1109	Green Karpet Lawn Seed Mixture					L.	—	1.00	9.95	1.70	1/1939
	Sears, Roebuck & Co., Worcester					F.	91.42	.34	8.00	.24	7/1939
	Ingredients: Kentucky Bluegrass	32.00	34.10	80.00	72.00						
	Redtop	18.00	18.68	90.00	91.00						
	Domestic Ryegrass	37.35	38.64	90.00	96.00						
	STANFORD SEED CO., Binghamton, N. Y.										
629	Lawn Seed, No. 5001					L.	—	1.00	15.53	—	1/1939
	Ware Coal & Grain Co., Ware					F.	84.09	1.03	13.30	1.58	7/1939

	Ingredients: Kentucky Bluegrass	16.15	15.44	80.00	88.00						
	Redtop	26.80	28.28	85.00	85.00						
	Timothy	14.85	15.07	90.00	70.00						
	White Clover	6.86	9.02	85.00	86.00–7						
	Domestic Ryegrass	18.81	16.28	90.00	96.00						
	(24 English Plantain Seed per oz. found) (1)										
	JOHN B. VARICK CO., Manchester, N. Y.										
957	Mixed Lawn Seed					L.	—	*	*	—	**
	Avery's Variety Store, Northfield					F.	92.53	.18	6.00	1.29	6/1939
	Ingredients: Kentucky Bluegrass (††)	85.00	26.17	80.00	79.00						
	Timothy (4) (††)	95.00	—	90.00	—						
	White Clover (††)	97.40	5.16	93.00	82.00–13						
	Chewing's Fescue (Red) (††)	48.00	4.33	80.00	80.00						
	Domestic Ryegrass (††)	98.50	7.37	90.00	85.00						
	Redtop (3)	—	49.50	—	95.00						
	WATERS & BROWN, Salem, Mass.										
1044	Special Lawn Seed Mixture					L.	—	1.00	7.25	—	2/1939
	Waters & Brown, Salem					F.	92.00	.29	7.24	.47	6/1939
	Ingredients: Kentucky Bluegrass, Fancy	21.25	19.90	80.00	85.00						
	Redtop, Fancy	41.40	—	90.00	—						
	White Clover	7.84	8.85	90.00	74.00–14						
	New Zealand Chewing's Fescue	11.76	11.92	75.00	41.00						
	Bent Grass, Fancy (6)	9.50	—	90.00	—						
	Agrostis spp. (Redtop and Colonial Bent)	—	51.33	—	91.00						
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.										
247	Quick Green Lawn Seed					L.	—	2.00	14.00	2.00	2/1939
	State Supply Co., Boston					F.	84.63	.46	14.45	.46	7/1939
	Ingredients: Redtop	13.00	12.96	75.00	87.00						
	Timothy	29.00	30.65	90.00	77.00						
	White Clover	1.00	1.48	75.00	89.00–10						
	Domestic Ryegrass	39.00	39.54	90.00	95.00						
264	Excelsior Lawn Seed Special Mixture (7)					L.	-	.70	8.00	2.30	2/1939
	Eastern Grain Co., Bridgewater					F.	90.05	.70	8.90	.35	5/1939
	Ingredients: Kentucky Bluegrass	30.00	27.84	80.00	45.00						
	Redtop, Fancy	47.00	50.93	90.00	40.00						
	New Zealand Chewing's Fescue	5.00	3.88	80.00	10.00						
	White Clover	7.00	7.40	90.00	65.00–2						

(††) Percentage of Purity labeled. Percentage of each ingredient required.

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Dealer and Place Collected, Brand Name of Mixture, and Ingredients of Each Mixture	Ingredients, % Label	Ingredients, % Found	Germination, % Label	Germination, % Found		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Date of Test
	SPECIAL SEED MIXTURES—Concluded										
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.										
296	City Park Lawn Seed					L.	—	1.00	12.50	.50	2/1939
	Stone Hardware Co., Brockton					F.	89.83	.64	9.07	.46	6/1939
	Ingredients: Kentucky Bluegrass	17.00	15.48	80.00	73.00						
	Redtop	31.00	32.51	85.00	92.00						
	Timothy (5)	13.50	20.05	90.00	77.00						
	White Clover	3.00	3.66	90.00	84.00–9						
	Domestic Ryegrass	21.50	18.13	90.00	97.00						
	(10 English Plantain Seed per oz. found) (1)										
	WINER'S HARDWARE CO., Quincy, Mass.										
422	Reniro Lawn Grass Mixture					L.	—	1.00	10.10	—	1/1939
	Winer's Hardware Co., Weymouth					F.	91.04	.76	8.10	.10	7/1939
	Ingredients: Redtop	8.00	9.25	90.00	85.00						
	Timothy	39.50	39.37	90.00	52.00						
	White Clover	1.90	2.38	75.00	86.00–11						
	Domestic Ryegrass	39.50	40.04	90.00	96.00						
423	Winer's Own Lawn Grass Mixture					L.	—	.95	6.10	—	1/1939
	Winer's Hardware Co., Weymouth					F.	91.70	.50	7.40	.40	5/1939
	Ingredients: Kentucky Bluegrass	31.50	30.40	85.00	79.00						
	Redtop	44.76	—	90.00	—						
	White Clover	1.90	1.90	80.00	93.00–7						
	Chewing's Red Fescue	9.89	10.20	70.00	67.00						
	Colonial Bent	4.90	—	90.00	—						
	Agrostis spp. (Redtop and Colonial Bent)	—	49.20	—	93.00						
	S. D. WOODRUFF & SONS, Orange, Conn.										
985	Fancy Grass Seed—Velvet Mixture					L.	—	2.00	10.00	—	**
	Waskiewicz Bros., Hadley					F.	94.84	.18	4.53	.45	7/1939
	Ingredients: Kentucky Bluegrass	20.00	24.18	*	75.00						
	Redtop	10.00	10.14	*	94.00						
	Timothy	29.00	33.52	*	86.00						
	Ryegrass (6)	29.00	—	*	—						
	Domestic Ryegrass	—	27.00	—	96.00						
	(Average Germination)			80.00							

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	Germination Found %	Month of Test 1939
	ASPARAGUS		
	Standard Germination 65%		
	FOSTER FARRAR CO., Northampton, Mass.		
1151	Mary Washington Foster Farrar Co., Northampton	73	June
	G. W. GARDINER & SONS, Fall River, Mass.		
1060	Mary Washington G. W. Gardiner & Sons, Fall River	51	June
	BEANS		
	Standard Germinations: Large-Seeded Limas 70%; Small-Seeded Limas 80%; Other Varieties, not including Limas 80%.		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
75F	Bountiful, No. 9085 F Joseph Breck & Sons, Corp., Boston	98	June
76F	Surecrop Wax, No. 9083F Joseph Breck & Sons, Corp., Boston	83	June
883	Cranberry Bush C. F. Webster, West Townsend	99	June
	COBURN SEED & SUPPLY CO., Chelmsford, Mass.		
485F	Bountiful Coburn Seed & Supply Co., Chelmsford	91	June
	COMSTOCK, FERRE & CO., Wethersfield, Conn.		
202F	Pencil Pod Black Wax A. E. Wardell Co., New Bedford	92	June
210F	Improved Golden Wax Ricard Grain Co., New Bedford	91	June
279	Burpee's Stringless Green Pod Sargent Grain & Supply Co., Brockton	89	June
446	Bountiful Green Pod Bush Wm. F. Flynn Hardware Co., Attleboro	91	June
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.		
1F	Pencil Pod Bush Wax, Lot No. 10818 (Wholesaler's Germination Test 85%—12/1938) Eastern States Farmers' Exchange, Springfield	95	June
2F	Fordhook Bush Lima, Lot No. 2218 (Wholesaler's Germination Test 85%—12/1938) Eastern States Farmers' Exchange, Springfield	74	June
936	French Horticultural, Lot No. 10818 (Wholesaler's Germination Test 90%—12/1938) Greenfield Farmer's Cooperative Exchange, Greenfield	90	June
1024	Stringless Green Pod, Lot No. 318 (Wholesaler's Germination Test 85%—12/1938) Eastern States Farmers' Exchange, Worcester	93	June
1025	French Horticultural, Lot No. 10818 (Wholesaler's Germination Test 90%—12/1938) Eastern States Farmers' Exchange, Worcester	91	June
	THOMAS W. EMERSON CO., Boston, Mass.		
155F	Surecrop Thomas W. Emerson Co., Boston	99	June
156F	Golden Wax Thomas W. Emerson Co., Boston	96	June
914	French Horticultural Lincoln Square Paint & Hardware Co., Worcester	95	June

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	Germination Found %	Month of Test 1939
	BEANS—Continued		
	THOMAS W. EMERSON CO., Boston, Mass.		
1079	Kentucky Wonder Wax A. H. Whidden & Son, Inc., Peabody	97	June
	FERRY-MORSE SEED CO., Detroit, Mich.		
252F	Bountiful Union Florist, Faneuil Hall Mkt., Boston	93	June
487	Kentucky Wonder Chelsea Hardware Store, Chelsea	93	June
	FOSTER FARRAR CO., Northampton, Mass.		
1157	Round Pod Kidney Wax Foster Farrar Co., Northampton	92	June
	FRASER'S, Wellesley, Mass.		
337F	Bountiful (Wholesaler's Germination Test 90%—1/1939) Fraser's, Wellesley	97	June
338F	Improved Golden Wax (Wholesaler's Germination Test 90%—1/1939) Fraser's, Wellesley	99	June
1182	Surecrop Fraser's, Wellesley	94	June
1183	Golden Wax Fraser's, Wellesley	95	June
	G. W. GARDINER & SONS, Fall River, Mass.		
99F	Red Valentine (Wholesaler's Germination Test 90%—2/1939) G. W. Gardiner & Sons, Fall River	90	June
1061	Round Pod Kidney Wax G. W. Gardiner & Sons, Fall River	94	June
	J. J. H. GREGORY & SON, Marblehead, Mass.		
496F	Surecrop Wax J. J. H. Gregory & Son, Marblehead	98	June
	THOMAS J. GREY CO., Boston, Mass.		
37F	Surecrop Wax (Wholesaler's Germination Test 90%—1/1939) Thomas J. Grey Co., Boston	84	June
38F	Shell French Dwarf Horticultural Thomas J. Grey Co., Boston	95	June
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.		
36F	Pencil Pod Black Wax, Lot No. 2085 (Wholesaler's Germination Test 99%—1939) Joseph Harris Co., Inc., Cambridge, Mass.	99	June
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
318F	Bountiful (Wholesaler's Germination Test 90%—1/1939) Faneuil Florist, 26 Dock Sq., Boston	100	June
383	Golden Wax Bush Cleveland Hardware Co., Walpole	91	June
742	Lowe's Champion (Wholesaler's Germination Test—1/1939) H. F. Davis Hardware Co., Merrimac	94	June
1133	Dwarf Horticultural or Cranberry F. H. Turner & Co., Gt. Barrington	99	June
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
408	Black Wax or Butter W. G. Moses, 134 Broad St., Bridgewater	54	June
	D. LANDRETH SEED CO., Bristol, Pa.		
747	French Horticultural Staples Hardware Co., Haverhill	60	June

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	Germination Found %	Month of Test 1939
	BEANS—Continued		
	MICHAEL LEONARD SEED CO., Chicago, Ill.		
393F	Long Yellow Six Weeks	88	June
	Kingman Hardware Co., Franklin		
516	Burpee's Stringless Green Pod	99	June
	(Wholesaler's Germination Test 90%—12 1938)		
	W. E. Aubuchon Co., Inc., Maynard		
	THE PAGE SEED CO., Greene, N. Y.		
287F	Pencil Pod Black Wax	97	June
	Stone Hardware Co., Brockton		
	O. B. PARKS CO., Westfield, Mass.		
1119	Long Yellow Six Weeks	96	June
	O. B. Parks Co., Westfield		
	W. G. PEARSE & CO., Fall River, Mass.		
109F	Bountiful	98	June
	W. G. Pearse & Co., Fall River		
	GEORGE R. PEDRICK & SONS, Pedricktown, N. J.		
392	Black Wax	97	June
	Continental Nurseries, Franklin		
	PERRY SEED CO., Boston, Mass.		
58F	Black Valentine 615 W	94	June
	Perry Seed Co., Boston		
1096	Dwarf Horticultural 387 W	95	June
	Perry Seed Co., Boston		
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
122F	Black Wax	80	June
	H. S. Chadbourne & Co., Milford		
1136	Keeney's Imp. Rustless Golden Wax	97	June
	Frank Howard, Inc., Pittsfield		
1137	Dwarf Horticultural	98	June
	Frank Howard, Inc., Pittsfield		
	ROSS BROS. CO., Worcester, Mass.		
137F	Pencil Pod Black Wax	97	June
	Ross Bros. Co., Worcester		
175F	Round Pod Kidney Wax	93	June
	Ross Bros. Co., Worcester		
	JOSEPH SORDILLO & SONS, 115 Cross St., Boston, Mass.		
995	Italian Roman Pole	95	June
	Joseph Sordillo & Sons, Boston, Mass.		
996	Fave di Preglia	24	June
	Joseph Sordillo & Sons, Boston		
	THORNTON & CROUCH, Lawrence, Mass.		
1045	Burpee's Green Pod	95	June
	Thornton & Crouch, Lawrence		
	JOHN B. VARICK CO., Manchester, N. H.		
550F	Ward's Kidney Wax	88	June
	L. L. Peavey Co., Newburyport		
	F. H. WOODRUFF & SONS, Milford, Conn.		
151F	Bountiful, Lot No. 13652	95	June
	(Wholesaler's Germination Test 94%—1 1939)		
	Middlesex County Farm Bureau, Waltham		
153F	Pencil Pod Black Wax, Lot No. 13773	97	June
	(Wholesaler's Germination Test 94%—2 1939)		
	Middlesex County Farm Bureau, Waltham		
616	Fordhook Bush Lima	75	June
	J. B. Sibley & Son, Ware		

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	Germination Found %	Month of Test 1939
	BEANS—Concluded		
	F. H. WOODRUFF & SONS, Milford, Conn.		
724	French Horticultural Farm Service Store, Middleboro	94	June
	S. D. WOODRUFF & SONS, Orange, Conn.		
269F	Burpee's Stringless Green Pod (Wholesaler's Germination Test 90%—1 1939) J. H. Fairbanks Co., Bridgewater	94	June
403F	Yellow Six Weeks Monroe's Seed Market, Attleboro	89	June
404	Golden Wax Monroe's Seed Market, Attleboro	71	June
1126	Kentucky Wonder (Wholesaler's Germination Test 95%—11 1936) The George Methe Co., Westfield	92	June
	BEETS		
	Standard Germination 65%		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
77F	Crosby's Egyptian, Lot No. 9107 F Joseph Breck & Sons, Corp., Boston	85	June
	COMSTOCK, FERRE & CO., Wethersfield, Conn.		
204F	Early Wonder Ricard Grain Co., New Bedford	78	June
282F	Detroit Dark Red Sargent Grain & Supply Co., Brockton	79	June
343F	Crosby's Egyptian Crossman's Hardware Co., Needham	84	June
399	Ea. Blood Turnip Brownell Hardware Co., Attleboro	79	June
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.		
3F	Detroit Late Market Globe, Lot No. 318 (Wholesaler's Germination Test 75%—12 1938) Eastern States Farmers' Exchange, Springfield	90	June
	THOMAS W. EMERSON CO., Boston, Mass.		
157F	Dark Red Egyptian Thomas W. Emerson Co., Boston	59	June
158F	Early Wonder Thomas W. Emerson Co., Boston	75	June
504	Detroit Dark Red United Cooperative Society, Maynard	71	June
	EMPIRE SEED CO., Fredonia, N. Y.		
813	Early Blood Turnip N. Archer Groceries, North Andover	72	June
	FERRY-MORSE SEED CO., Detroit, Mich.		
248F	Early Blood Turnip (Packed for 1939) Union Florist, Faneuil Hall Mkt., Boston	84	June
	FRASER'S, Wellesley, Mass.		
340F	Boston Crosby (Wholesaler's Germination Test 80%—1 1939) Fraser's, Wellesley	86	June
	FREDONIA SEED CO., Fredonia, N. Y.		
240F	Detroit Dark Red Charles F. Stone Co., Dorchester	91	June

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	Germination Found %	Month of Test 1939
	BEETS—Continued		
	G. W. GARDINER & SONS, Fall River, Mass.		
100F	Crosby's Egyptian	86	June
	(Wholesaler's Germination Test 86%—1 1939)		
	G. W. Gardiner & Sons, Fall River		
	J. J. H. GREGORY & SON, Marblehead, Mass.		
495	Detroit Dark Red	90	June
	J. J. H. Gregory & Son, Marblehead		
	GOOD SEED CO., Fredonia, N. Y.		
736	Early Blood	87	June
	L. Z. Thomas School, So. Hanson		
827	Detroit Dark Red	80	June
	Bradstreet School, No. Andover		
	THOMAS J. GREY CO., Boston, Mass.		
39F	Crosby's Egyptian	93	June
	Thomas J. Grey Co., Boston		
40F	Detroit	91	June
	Thomas J. Grey Co., Boston		
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.		
34F	Crosby's Egyptian, No. 426	90	June
	(Wholesaler's Germination Test 80%—)		
	Joseph Harris Co., Inc., Cambridge		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
300F	Detroit Dark Red	88	June
	(Wholesaler's Germination Test 80%—1939)		
	Sargent Grain & Supply Co., Brockton		
380	Crosby's Egyptian	83	June
	Cleveland Hardware Co., Walpole		
	BUDD D. HAWKINS, Reading, Vt.		
138F	Detroit Dark Red	88	June
	I. B. Burrows, Worcester		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
190F	Extra Ea. Egyptian Blood Turnip	80	June
	(Wholesaler's Germination Test 90%—12 1938)		
	Serafino Tarini, New Bedford		
	THE PAGE SEED CO., Greene, N. Y.		
266F	Detroit Dark Red	81	June
	J. H. Fairbanks Co., Bridgewater		
294	Early Blood Turnip	70	June
	Stone Hardware Co., Brockton		
	W. G. PEARSE & CO., Fall River, Mass.		
110F	Detroit Dark Red	93	June
	W. G. Pearse & Co., Fall River		
	PERRY SEED CO., Boston, Mass.		
59F	Crosby's Egyptian, No. 1143R	89	June
	Perry Seed Co., Boston		
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
119F	Detroit Dark Red	88	June
	H. S. Chadbourne & Co., Milford		
	ROSS BROS. CO., Worcester, Mass.		
178F	Detroit Dark Red	86	June
	Ross Bros. Co., Worcester		
179F	Early Wonder	87	June
	Ross Bros. Co., Worcester		
	VAUGHAN'S SEED STORE, N. Y.		
634	Crosby's Egyptian	77	June
	Coggers, Florist, Saugus		

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	Germination Found %	Month of Test 1939
	BEETS—Concluded		
	JOHN B. VARICK CO., Manchester, N. H.		
551F	Crosby's Egyptian	88	June
	L. L. Peavey Co., Newburyport		
	F. H. WOODRUFF & SONS, Milford, Conn.		
143F	Woodruff's Ea. Wonder	68	June
	(Wholesaler's Germination Test 66%—10/1938)		
	Middlesex County Farm Bureau, Waltham		
426	Ea. Wonder (2)	36	June
	(Wholesaler's Germination Test 75%—1939)		
	Winer's Hardware Store, Weymouth		
	S. D. WOODRUFF & SONS, Orange, Conn.		
271F	Crosby's Egyptian	81	June
	(Wholesaler's Germination Test 87%—12/1938)		
	J. H. Fairbanks Co., Bridgewater		
670	Detroit Dark Red	77	June
	(Wholesaler's Germination Test—12/1938)		
	Monroe's Seed Market, Attleboro		
	BROCCOLI		
	Standard Germination 75%		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
78F	Italian Green Sprouting, Lot No. 9111 F	84	July
	Joseph Breck & Sons, Corp., Boston		
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.		
4F	Calabrese, Lot No. 4 A 13715	68	July
	(Wholesaler's Germination Test 80%—12/1938)		
	Eastern States Farmers' Exchange, Springfield		
	THOMAS J. GREY CO., Boston, Mass.		
41F	Calabrese	79	July
	Thomas J. Grey Co., Boston		
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.		
29F	Italian Green Sprouting, Lot No. 18	79	June
	(Wholesaler's Germination Test 92%—1939)		
	Joseph Harris Co., Inc., Cambridge		
	PERRY SEED CO., Boston, Mass.		
60F	Calabrese, Lot No. 115 N	77	June
	Perry Seed Co., Boston		
	NORTHRUP, KING & CO., Minneapolis, Minn.		
1209	St. Valentine	67	July
	(Wholesaler's Germination date 1939)		
	Peirson Hardware Co., Pittsfield		
	JOSEPH SORDILLO & SONS, Boston, Mass.		
991	Carvolo, European Seed	84	July
	Joseph Sordillo & Sons, Boston		
	STERLING SEED CO., Minneapolis, Minn.		
702	Green Sprouting or Italian Calabrese	77	July
	(Wholesaler's Germination date Packed for 1939)		
	J. J. Newberry Co., Whitman		
	F. H. WOODRUFF & SONS, Milford, Conn.		
617F	Calabrese, Gr. Sprouting (2)	55	July
	J. B. Sibley & Son, Ware		
	BRUSSELS SPROUTS		
	Standard Germination 70%		
	FRASER'S, Wellesley, Mass.		
1174	Long Island Improved	83	July
	(Wholesaler's Germination Test Approx. 85%—1/1939)		
	Fraser's, Wellesley		

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	Germination Found %	Month of Test 1939
	BRUSSELS SPROUTS—Concluded		
	F. H. WOODRUFF & SONS, Milford, Conn.		
1203	Half Dwf. Paris Market	0	July
	Peirson Hardware Co., Pittsfield		
	CABBAGE		
	Standard Germination 75%		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
79F	Danish Ballhead, Lot No. 9021F	93	June
	Joseph Breck & Sons, Corp., Boston		
757	Copenhagen	60	July
	Ellison Coal & Grain Co., Haverhill		
	COMSTOCK, FERRE & CO., Wethersfield, Conn.		
200F	Copenhagen Market	94	June
	A. E. Wardell Co., New Bedford		
207	Perfection Drumhead Savoy	92	June
	Ricard Grain Co., New Bedford		
283	Early Jersey Wakefield	78	June
	Sargent Grain & Supply Co., Brockton		
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.		
5F	Copenhagen Golden Acre—6 E 1415	83	June
	(Wholesaler's Germination Test 80%—12/1938)		
	Eastern States Farmers' Exchange, Springfield		
	THOMAS W. EMERSON CO., Boston, Mass.		
159F	Danish Ballhead	86	June
	Thomas W. Emerson Co., Boston		
160F	Golden Acre	77	June
	Thomas W. Emerson Co., Boston		
	G. W. GARDINER & SONS, Fall River, Mass.		
101F	Select Golden Acre	82	June
	(Wholesaler's Germination Test 88%—2/1939)		
	G. W. Gardiner & Sons, Fall River		
	GOOD SEED CO., Fredonia, N. Y.		
733	Danish Ballhead	88	July
	L. Z. Thomas School, So. Hanson		
	THOMAS J. GREY & CO., Boston, Mass.		
42F	Golden Acre	92	June
	(Wholesaler's Germination Test 96%—1/1939)		
	Thomas J. Grey & Co., Boston		
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.		
28F	Golden Acre, No. 1007	89	June
	(Wholesaler's Germination Test 92%—1939)		
	Joseph Harris Co., Inc., Cambridge		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
457	Danish Ballhead (2)	72	June
	Hammond Hardware Co., Attleboro		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
192F	Early Jersey Wakefield	13	July
	(Wholesaler's Germination Test 85%—12/1938)		
	Serafino Tarini, New Bedford		
409	Danish Ballhead	95	June
	(Wholesaler's Germination Test 75%—12/1938)		
	W. G. Moses, Bridgewater		
	D. LANDRETH SEED CO., Bristol, Pa.		
1188	Amagar	47	June
	P. A. Richard Hardware Co., Spencer		

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	Germination Found %	Month of Test 1939
	CABBAGE—Concluded		
	MICHAEL LEONARD SEED CO., Chicago, Ill.		
902	Early Jersey Wakefield (Wholesaler's Germination Test 85%—12/1938) United Cooperative Farmer's Inc., Fitchburg	80	July
	THE PAGE SEED CO., Greene, N. Y.		
295	Improved Savoy Stone Hardware Co., Brockton	84	June
	A. G. PATCH CO., Boston, Mass.		
220	Drumhead Savoy A. G. Patch Co., Boston	88	June
	W. G. PEARSE & CO., Fall River, Mass.		
111F	Danish Round Head—Short Stem W. G. Pearse & Co., Fall River	80	June
	PERRY SEED CO., Boston, Mass.		
61F	Penn. State Ballhead, Lot No. 1580 F Perry Seed Co., Boston	86	June
	ROSS BROS. CO., Worcester, Mass.		
176F	Danish Round Head Ross Bros. Co., Worcester	75	June
177F	Copenhagen Market Ross Bros. Co., Worcester	81	June
	F. H. WOODRUFF & SONS, Milford, Conn.		
142F	Golden Acre, Lot No. 11776 (Wholesaler's Germination Test 77%—11/1938) Middlesex County Farm Bureau, Waltham	76	June
761	Danish Ballhead D. J. Mahoney Hardware Co., Bradford	80	June
	S. D. WOODRUFF & SONS, Orange, Conn.		
986	Danish Ballhead, Lot No. 1069 Waskiewicz Bros., Hadley	54	July
	CARROTS		
	Standard Germination 55%		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
81F	Hutchinson, No. 9122 F Joseph Breck & Sons, Corp., Boston	62	May
395	Danvers Half Long A. T. Chase Corp., Dedham	66	May
	COMSTOCK FERRE & CO., Wethersfield, Conn.		
199F	Hutchinson A. E. Wardell Co., New Bedford	71	May
205F	Improved Danvers Ricard Grain Co., New Bedford	62	May
344F	Improved Long Orange Crossman's Hardware Co., Needham	55	May
449	Chantenay Wm. F. Flynn Hardware Co., Attleboro	57	May
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.		
7F	Nantes Long, No. 2127 (Wholesaler's Germination Test 70%—12/1938) Eastern States Farmers' Exchange, Springfield	80	May
	THOMAS W. EMERSON CO., Boston		
161F	Chantenay Thomas W. Emerson Co., Boston	68	May
162F	Hutchinson Thomas W. Emerson Co., Boston	80	May

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	Germination Found %	Month of Test 1939
	CARROTS—Continued		
	FERRY-MORSE SEED CO., Detroit, Mich.		
249F	Red Cored Chantenay	70	May
	Union Florist, Faneuil Hall Mkt., Boston		
	FRASER'S, Wellesley		
341F	Chantenay	72	May
	(Wholesaler's Germination Test 75%—1 1939)		
	Fraser's, Wellesley		
	G. W. GARDINER & SONS, Fall River, Mass.		
103F	Danver's Half Long	76	May
	(Wholesaler's Germination Test 83%—1 1939)		
	G. W. Gardiner & Sons, Fall River		
	GOOD SEED CO., Fredonia, N. Y.		
731	Danvers Half Long	75	May
	L. Z. Thomas School, So. Hanson		
	THOMAS J. GREY CO., Boston, Mass.		
44F	Scarlet Nantes	72	May
	Thomas J. Grey Co., Boston		
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.		
32F	Nantes, No. 448	73	May
	(Wholesaler's Germination Test 76%—1939)		
	Joseph Harris Co., Inc., Cambridge		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
299F	Danvers Half Long Stump Root	69	May
	(Wholesaler's Germination Test 65%—1939)		
	Sargent Grain & Supply Co., Brockton		
381	Danvers Half Long	89	May
	Cleveland Hardware Co., Walpole		
	BUDD D. HAWKINS, Reading, Vt.		
140F	Red Cored Chantenay	59	May
	I. B. Barrows, Worcester		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
191F	Danvers Half Long	58	May
	(Wholesaler's Germination Test 65%—12 1938)		
	Serafino Tarini, New Bedford		
413	Chantenay	65	May
	(Wholesaler's Germination Test 65%—1938. Packed in 1939)		
	W. G. Moses, Bridgewater		
	D. LANDRETH SEED CO., Bristol, Pa.		
1189	Improved Danvers Half Long	77	June
	P. A. Richard Hardware Co., Spencer		
	MICHAEL LEONARD SEED CO., Chicago, Ill.		
135F	Improved Long Orange	78	May
	(Wholesaler's Germination Test 75%—12 1938)		
	W. E. Aubuchon Co., Milford		
	THE PAGE SEED CO., Greene, N. Y.		
267F	Danvers Half Long	60	May
	(Wholesaler's Germination Test 65%—1 1939)		
	J. H. Fairbanks & Co., Bridgewater		
	A. G. PATCH CO., Boston, Mass.		
221F	Improved Danver's Half Long	58	June
	A. G. Patch Co., Boston		
	W. G. PEARSE & CO., Fall River, Mass.		
112F	Chantenay	87	May
	W. G. Pearse & Co., Fall River		
	PERRY SEED CO., Boston, Mass.		
63F	Hutchinson, Lot No. 2150 FM	85	May
	Perry Seed Co., Boston		

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	Germination Found %	Month of Test 1939
	CARROTS—Concluded		
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
123F	Danver's Half Long H. S. Chadbourne & Co., Milford	79	May
	ROSS BROS. CO., Worcester, Mass.		
276F	Danvers Half Long J. H. Fairbanks Co., Bridgewater	72	May
	JOHN B. VARICK CO., Manchester, N. H.		
881	Long Orange (Wholesaler's Germination Test 62%—) R. F. Powell Hardware Co., Townsend	57	June
	F. H. WOODRUFF & SONS, Milford, Conn.		
144F	Hutchinson (Wholesaler's Germination Test 76%—10/1938) Middlesex County Farm Bureau, Waltham	77	May
145F	Danver's Half Long, No. 8020 (Wholesaler's Germination Test 69%—12/1938) Middlesex County Farm Bureau, Waltham	74	May
770	Chantenary Red Cored Haverhill Hardware & Supply Co., Haverhill	70	May
	S. D. WOODRUFF & SONS, Orange, Conn.		
270	Danvers Half Long (Wholesaler's Germination Test 78%—12/1938) J. H. Fairbanks Co., Bridgewater	70	June
669	Danvers Half Long, No. 1735 (Wholesaler's Germination Test Approx. 72%—12/1938) Monroe's Seed Market, Attleboro	64	May
	CAULIFLOWER		
	Standard Germination 75%		
	G. W. GARDINER & SONS, Fall River, Mass.		
1057	Early Snowball G. W. Gardiner & Sons, Fall River	89	June
	PERRY SEED CO., Boston, Mass.		
1101	Ea. Snowball 1922 Perry Seed Co., Boston	84	June
	JOSEPH SORDILLO & SONS, Boston, Mass.		
993	European Seed (6) Joseph Sordillo & Sons, Boston	72	July
	THORNTON & CROUCH, Lawrence, Mass.		
1052	Ea. Snowball Thornton & Crouch, Lawrence	82	July
	F. H. WOODRUFF & SONS, Milford, Conn.		
619	Snowball J. B. Sibley & Son, Ware	84	May
	CELERY		
	Standard Germination 55%		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
80	Golden Self Blanching, Lot No. 7023 F Joseph Breck & Sons, Corp., Boston	70	May
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.		
6	Golden Plume—JER 9 A 23017 (Wholesaler's Germination Test 65%—12/1938) Eastern States Farmers' Exchange, Springfield	62	May
1019	Pascal, Lot No. 9 C 1625 (Wholesaler's Germination Test 70%—12/1938) Eastern States Farmers' Exchange, Worcester	66	June

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	Germination Found %	Month of Test 1939
	CELERY—Concluded		
1154	FOSTER FARRAR CO., Northampton, Mass. Pascal Foster Farrar Co., Northampton	82	June
1175	FRASER'S, Wellesley, Mass. Giant Pascal Fraser's, Wellesley	83	June
1056	G. W. GARDINER & SONS, Fall River, Mass. Golden Plume G. W. Gardiner & Sons, Fall River	72	June
1071	J. J. H. GREGORY & SON, Marblehead, Mass. Golden Plume J. J. H. Gregory & Son, Marblehead	78	June
43	THOMAS J. GREY & CO., Boston, Mass. Early Blanching Thomas J. Grey & Co., Boston	82	May
31	JOSEPH HARRIS CO., INC., Coldwater, N. Y. Golden Plume or Wonderful, No. 315 (Wholesaler's Germination Test 76%—1939) Joseph Harris Co., Inc., Cambridge	64	May
352	LAKE SHORE SEED CO., Dunkirk, N. Y. Golden Hearted Self Blanching Bliss Hardware Co., Plymouth	43	May
62	PERRY SEED CO., Boston, Mass. Golden Plume or Wonderful, No. 2276 EM Perry Seed Co., Boston	76	May
1146	JEROME B. RICE SEED CO., Cambridge, N. Y. Giant Pascal Frank Howard, Inc., Pittsfield	69	June
1051	THORNTON & CROUCH, Lawrence, Mass. Giant Pascal Thornton & Crouch, Lawrence	67	June
704	F. H. WOODRUFF & SONS, Milford, Conn. Pascal Waldron Hardware Co., Taunton	80	May
	CHICORY		
	Standard Germination 65%		
1169	ROSS BROS. CO., Worcester, Mass. Ciccoria Catalogna Ross Bros. Co., Worcester	56	July
	CORN		
	Standard Germination 75%		
82F	JOSEPH BRECK & SONS, CORP., Boston, Mass. Golden Bantam, Lot No. 9237 H Joseph Breck & Sons, Corp., Boston	90	July
882	Golden Giant C. F. Webster, West Townsend	87	July
201F	COMSTOCK FERRE & CO., Wethersfield, Conn. Whipple's Yellow A. W. Wardell Co., New Bedford	98	July
209F	Crosby's Extra Early Ricard Grain Co., New Bedford	89	July
278	Golden Giant Sargent Grain & Supply Co., Brockton	89	June

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	Germination Found %	Month of Test 1939
	CORN—Continued		
	COMSTOCK, FERRE & CO., Wethersfield, Conn.		
447	Early Golden Bantam	97	June
	Wm. F. Flynn Hardware Co., Attleboro		
	ARTHUR R. CONE, Buffalo, N. Y.		
951	Bantam Evergreen 50-122	90	July
	(Wholesaler's Germination Test 90%—2/1939)		
	Sunshine Feed Store, Greenfield		
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.		
8F	Golden Bantam, Lot No. 14519	99	June
	(Wholesaler's Germination Test 90%—1/1939)		
	Eastern States Farmers' Exchange, Springfield		
1011	Golden Ea. Market, Yellow-11 A 114518	99	June
	(Wholesaler's Germination Test 90%—12/1938)		
	Eastern States Farmers' Exchange, Worcester		
	THOMAS W. EMERSON CO., Boston, Mass.		
163F	Marcross	98	July
	Thomas W. Emerson Co., Boston		
164F	Golden Bantam Evergreen	97	July
	Thomas W. Emerson Co., Boston		
505	Golden Bantam Evergreen	91	June
	United Cooperative Society, Maynard		
779	Golden Bantam	99	June
	Haverhill Coal & Grain Co., Haverhill		
	FERRY-MORSE SEED CO., Detroit, Mich.		
253F	Golden Bantam	93	July
	Union Florist, Faneuil Hall Mkt., Boston		
	FOSTER FARRAR CO., Northampton, Mass.		
1158	Golden Cross Bantam	97	June
	Foster Farrar Co., Northampton		
	FRASER'S, Wellesley, Mass.		
342F	Golden Cross Bantam	98	June
	(Wholesaler's Germination Test 90%—1/1939)		
	Fraser's, Wellesley		
	G. W. GARDINER & SONS, Fall River, Mass.		
104F	Golden Bantam	96	July
	(Wholesaler's Germination Test 93%—1/1939)		
	G. W. Gardiner & Sons, Fall River		
	J. J. H. GREGORY & SON, Marblehead, Mass.		
1067	Golden Bantam	96	June
	J. J. H. Gregory & Son, Marblehead		
	THOMAS J. GREY CO., Boston, Mass.		
45F	Golden Bantam	99	July
	Thomas J. Grey Co., Boston		
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.		
35F	Harris Extra Early Bantam, Lot No. 1177	97	July
	(Wholesaler's Germination Test 99%—1939)		
	Joseph Harris Co., Inc., Cambridge		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
317F	Early Golden Bantam	95	June
	Faneuil Florist, 26 Dock Sq., Boston		
379	Golden Bantam	84	June
	Cleveland Hardware Co., Walpole		
624	Golden Giant	94	June
	J. B. Sibley & Son, Ware		
	D. LANDRETH SEED CO., Bristol, Pa.		
750	Golden Sunshine	90	June
	Staples Hardware Co., Haverhill		

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	Germination Found %	Month of Test 1939
	CORN—Concluded		
	THE PAGE SEED CO., Greene, N. Y.		
268F	Golden Bantam (Wholesaler's Germination Test 88%—1 1939) J. H. Fairbanks Co., Bridgewater	97	June
289	Whipple's Ea. Yellow Stone Hardware Co., Brockton	94	June
528	Golden Sunshine (Wholesaler's Germination Test 88%—1 1939) Seder & Gruber, Maynard	95	June
	GEORGE R. PEDRICK & SONS, Pedricktown, N. J.		
384	Golden Giant (2) Continental Nurseries, Franklin	84	June
	W. G. PEARSE & CO., Fall River, Mass.		
118F	Whipple's Yellow W. G. Pearse & Co., Fall River	97	July
	PERRY SEED CO., Boston, Mass.		
64F	Earligold, Lot No., 2731 W. Perry Seed Co., Boston	97	July
1103	Sencross Hybrid, Lot No. 2611 Perry Seed Co., Boston	89	June
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
124F	Golden Bantam H. S. Chadbourne & Co., Milford	96	July
1140	Sunshine Frank Howard, Inc., Pittsfield	88	June
	ROSS BROS. CO., Worcester, Mass.		
183F	Market Hybrid Ross Bros. Co., Worcester	98	July
184F	Golden Sunshine, Lot No. 40-1396 Ross Bros. Co., Worcester	98	July
782	Golden Bantam W. C. Matteson Hardware Co., Blackstone	97	June
	THORNTON & CROUCH, Lawrence, Mass.		
1046	Golden Sunshine Thornton & Crouch, Lawrence	93	June
	JOHN B. VARICK CO., Manchester, N. H.		
552F	Stowell's Evergreen L. L. Peavey Co., Newburyport	99	June
	F. H. WOODRUFF & SONS, Milford, Conn.		
152F	Whipple's, Lot No. 12970 Middlesex County Farm Bureau, Waltham	97	July
154F	Golden Cross Bantam, No. 12969 (Wholesaler's Germination Test 95%—12 1938) Middlesex County Farm Bureau, Waltham	98	July
764	Early Yellow Sensation D. J. Mahoney Hardware Co., Bradford	95	June
	S. D. WOODRUFF & SONS, Orange, Conn.		
272F	Golden Sunshine (Wholesaler's Germination Test 88%—12 1938) J. H. Fairbanks Co., Bridgewater	88	June
406	Bantam Evergreen Monroe's Seed Market, Attleboro	80	June

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	Germination Found %	Month of Test 1939
	CRESS		
	Standard Germination: Curled, 70%		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
794	Curled	43	July
	Uxbridge Hardware Co., Uxbridge		
	F. H. WOODRUFF & SONS, Milford, Conn.		
841	Curled (2)	49	June
	Treat Hardware Co., Lawrence		
	CUCUMBER		
	Standard Germination 80%		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
83F	Davis Perfect, Lot No. 9052 R	93	May
	Joseph Breck & Sons, Corp., Boston		
	COMSTOCK, FERRE & CO., Wethersfield, Conn.		
286	Arlington White Spine	96	May
	Sargent Grain & Supply Co., Brockton		
677	Improved Long Green	81	July
	Mansfield Lumber Co., Mansfield		
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.		
9F	Straight Eight, No. 618	94	May
	(Wholesaler's Germination Test 80%—12/1938)		
	Eastern States Farmers' Exchange, Springfield		
	THOMAS W. EMERSON CO., Boston, Mass.		
165F	Straight Eight	97	May
	Thomas W. Emerson Co., Boston		
509	Improved White Spine	98	May
	Parker Hardware Co., Maynard		
	FERRY-MORSE SEED CO., Detroit, Mich.		
661	Improved Long Green	97	July
	Monroe's Seed Market, Attleboro		
1076	Long Green	94	July
	Economy Hardware Store, Peabody		
	FREDONIA SEED CO., Fredonia, N. Y.		
241	Improved Long Green	95	May
	Charles F. Stone Co., Dorchester		
	G. W. GARDINER & SONS, Fall River, Mass.		
1058	Davis Perfect	91	July
	G. W. Gardiner & Sons, Fall River		
	GOOD SEED CO., Fredonia, N. Y.		
825	White Spine	90	July
	Bradstreet School, No. Andover		
	THOMAS J. GREY CO., Boston, Mass.		
46F	Straight Eight	96	May
	Thomas J. Grey Co., Boston		
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.		
33F	Straight Eight, No. 815	98	May
	(Wholesaler's Germination Test 99%—1939)		
	Joseph Harris Co., Inc., Cambridge		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
969	Improved Long Green	84	July
	Berkshire Hardware & Farm Equipment Co., No. Adams		
	BUDD D. HAWKINS, Reading, Vt.		
139F	Improved Long Green	87	May
	I. B. Barrows, Worcester		

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	Germination Found %	Month of Test 1939
	CUCUMBER—Concluded		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
197	Improved Long Green	40	May
	(Wholesaler's Germination Test 85%—12 1938)		
	Ricard Grain Co., New Bedford		
	MICHAEL LEONARD SEED CO., Chicago, Ill.		
1008	Improved Long Green	89	July
	(Wholesaler's Germination Test 90%—12 1938)		
	Grown in Colorado 1938		
	W. E. Aubuchon Co., Worcester		
	O. B. PARKS CO., Westfield, Mass.		
1124	Boston Pickling	95	July
	O. B. Parks Co., Westfield		
	PERRY SEED CO., Boston, Mass.		
65F	Straight Eight, No. 3012 R	91	May
	Perry Seed Co., Boston		
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
121F	Long Green Imp. HL	81	May
	H. S. Chadbourne & Co., Milford		
753	Improved Long Green	88	July
	Leavitt's Sport Shop, Haverhill		
	ROSS BROS. CO., Worcester, Mass.		
181F	Long Green	96	May
	Ross Bros. Co., Worcester		
787	Long Green	94	July
	Farm & Garden Supply Co., Uxbridge		
	F. H. WOODRUFF & SONS, Milford, Conn.		
146F	Woodruff's Hybrid 8-95	95	May
	(Wholesaler's Germination Test 91%—10 1938)		
	Middlesex County Farm Bureau, Waltham		
705	Improved Long Green	84	July
	Waldron Hardware Co., Taunton		
	S. D. WOODRUFF & SON, Orange, Conn.		
666	White Spine	89	July
	(Wholesaler's Germination Test Approx. 90%—2 1938)		
	Monroe's Seed Market, Attleboro		
	DANDELION		
	Standard Germination 55%		
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.		
1018	Arlington Broadleaf, Lot No. 2419	64	June
	(Wholesaler's Germination Test 70%—1 1939)		
	Eastern States Farmers' Exchange, Worcester		
	THOMAS W. EMERSON CO., Boston, Mass.		
1042	Large Leaf (2)	0	June
	Waters & Brown, Salem		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
1128	Improved Giant Thick Leaf	28	June
	(Wholesaler's Germination Test 50%—1939)		
	Charles A. Hermason, Otis		
	EGG PLANT		
	Standard Germination 60%		
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.		
1017	New Hampshire Hybrid, No. 2419	91	June
	(Wholesaler's Germination Test 75%—12 1938)		
	Eastern States Farmers' Exchange, Worcester		

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	Germination Found %	Month of Test 1939
	EGG PLANT—Concluded		
	FERRY-MORSE SEED CO., Detroit, Mich.		
1194	Improved Long Purple	91	June
	Carlisle Hardware Co., Springfield		
	FRASER'S, Wellesley, Mass.		
1176	Black Beauty	80	June
	(Wholesaler's Germination Test 85%—1 1939)		
	Fraser's, Wellesley		
	THOMAS J. GREY CO., Boston, Mass.		
1006	Black Beauty	71	June
	Thomas J. Grey Co., Boston		
	NORTHRUP, KING & CO., Minneapolis, Minn.		
1210	N. Y. Spineless (Packed 1939)	68	June
	Peirson Hardware Co., Pittsfield		
	PERRY SEED CO., Boston, Mass.		
1102	Black Beauty, Lot No. 3099 H	83	June
	Perry Seed Co., Boston		
	ROSS BROS. CO., Worcester, Mass.		
1167	New York Purple	80	June
	Ross Bros. Co., Boston		
	JOSEPH SORDILLO & SONS, Boston, Mass.		
988	New York State European Seed	80	June
	Joseph Sordillo & Sons, Boston		
	F. H. WOODRUFF & SONS, Milford, Conn.		
707	Black Beauty	77	May
	Waldron Hardware Co., Taunton		
	ENDIVE		
	Standard Germination 70%		
	W. E. AUBUCHON CO., Worcester, Mass.		
1007	Broad Leaved Batavian, Gr. in California 1938	89	June
	(Wholesaler's Germination Test 80%—12 1938)		
	W. E. Aubuchon Co., Worcester		
	COMSTOCK, FERRE & CO., Wethersfield, Conn.		
285	Green Curled	86	May
	Sargent Grain & Supply Co., Brockton		
	FERRY-MORSE SEED CO., Detroit, Mich.		
1195	Broad Leaved Batavian	76	June
	Carlisle Hardware Co., Springfield		
	BUDD D. HAWKINS, Reading, Vt.		
863	Green Curled	92	June
	Montgomery Hardware Co., Ayer		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
640	Green Curled	97	May
	Coggers, Florist, Saugus		
	F. H. WOODRUFF & SONS, Milford, Conn.		
762	Broad Leaved	92	May
	D. J. Mahoney Hardware Co., Bradford		
	KALE		
	Standard Germination 75%		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
703	Dwarf or Borecole	35	August
	(Wholesaler's Germination Test Approx. 75%—1938)		
	The Weir Grain Co., Taunton		
	F. H. WOODRUFF & SONS, Milford, Conn.		
766	Imp. Dwarf Green Curled Scotch (2)	68	July
	Haverhill Hardware & Supply Co., Haverhill		

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	Germination Found %	Month of Test 1939
	KOHL RABI		
	Standard Germination 75%		
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.		
1021	White Vienna 18 A 1618	94	July
	(Wholesaler's Germination Test 95%—12 1938)		
	Eastern States Farmers' Exchange, Worcester		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
1129	Ea. White Vienna	95	June
	Lewis George, Gr. Barrington		
	LEEK		
	Standard Germination 60%		
	PERRY SEED CO., Boston, Mass.		
1106	Musselburgh or Carentan, Lot No. 3280 FM	85	June
	Perry Seed Co., Boston		
	ROSS BROS. CO., Worcester, Mass.		
1168	Broadleaf	88	June
	Ross Bros. Co., Worcester		
	LETTUCE		
	Standard Germination 80%		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
84F	Black Seeded Tennisball, No. 9029 F	94	May
	Joseph Breck & Sons, Corp., Boston		
396	Big Boston (2)	2	May
	A. T. Chase Corp., Dedham		
536	N. Y. or Iceberg	97	May
	D. Cashman Hardware Co., Newburyport		
756	Black Seeded Tennisball	91	May
	Ellison Coal & Grain Co., Haverhill		
	COMSTOCK, FERRE & CO., Wethersfield, Conn.		
203F	New York, No. 12	92	May
	Ricard Grain Co., New Bedford		
280	Boston Market (2)	1	May
	Sargent Grain & Supply Co., Brockton		
281	Iceberg (2)	64	May
	Sargent Grain & Supply Co., Brockton		
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.		
10F	Imperial 847	93	May
	(Wholesaler's Germination Test 90%—12 1938)		
	Eastern States Farmers' Exchange, Springfield		
1015	New York, No. 12 2013 1718	94	June
	(Wholesaler's Germination Test 90%—12 1938)		
	Eastern States Farmers' Exchange, Worcester		
1016	Imperial 847, No. 719	95	June
	(Wholesaler's Germination Test 95%—12 1938)		
	Eastern States Farmers' Exchange, Worcester		
	THOMAS W. EMERSON CO., Boston, Mass.		
166F	Boston Market	76	July
	Thomas W. Emerson Co., Boston		
167	New York	99	May
	Thomas W. Emerson Co., Boston		
791	Iceberg	91	May
	Uxbridge Hardware Co., Uxbridge		

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	Germination Found %	Month of Test 1939
	LETTUCE—Continued		
	THOMAS W. EMERSON CO., Boston, Mass.		
796	Simpson Early Curled	97	May
	O. M. Kindler Hardware Co., Webster		
	EMPIRE SEED CO., Fredonia, N. Y.		
810	Early Curly Simpson	40	July
	N. Archer Groceries, West Andover		
	FOSTER FARRAR CO., Northampton, Mass.		
1152	Imperial, No. 847	99	June
	Foster Farrar Co., Northampton		
	FRASER'S, Wellesley, Mass.		
339	Black Seeded Tennisball	25	May
	(Wholesaler's Germination Test 85%—1/1939)		
	Fraser's, Wellesley		
1177	White Big Boston	82	June
	(Wholesaler's Germination Test 85%—1/1939)		
	Fraser's, Wellesley		
	FREDONIA SEED CO., Fredonia, N. Y.		
242	Black Seeded Simpson	97	May
	Charles F. Stone Hardware Co., Dorchester		
644	Black Seeded Simpson	92	May
	Macey's Market, Amesbury		
1216	Big Boston	89	June
	Berkshire Hardware Co., Inc., Pittsfield		
	G. W. GARDINER & SONS, Fall River, Mass.		
102F	Black Seeded Tennisball	84	May
	(Wholesaler's Germination Test 87%—1/1939)		
	G. W. Gardiner & Sons, Fall River		
108F	Imperial 847	96	May
	(Wholesaler's Germination Test 94%—2/1939)		
	G. W. Gardiner & Sons, Fall River		
	GOOD SEED CO., Fredonia, N. Y.		
732	Prizehead—Early Loose Leaf	86	May
	L. Z. Thomas School, So. Hanson		
735	Grand Rapids	91	May
	L. Z. Thomas School, So. Hanson		
	J. J. H. GREGORY & SON, Marblehead, Mass.		
1068	New York, No. 12	91	June
	J. J. H. Gregory & Son, Marblehead		
	THOMAS J. GREY CO., Boston, Mass.		
47G	Black Seeded Tennisball	86	May
	Thomas J. Grey Co., Boston		
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.		
20F	Imperial 847—No. 653	97	May
	(Wholesaler's Germination Test 99%—1939)		
	Joseph Harris Co., Inc., Cambridge		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
456	Big Boston (2)	20	June
	Hammond Hardware Co., Attleboro		
861	Simpson's Early Curled	69	July
	Montgomery Hardware Co., Ayer		
	BUDD D. HAWKINS, Reading, Vt.		
862	Black Seeded Tennisball	94	June
	Montgomery Hardware Co., Ayer		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
189F	Big Boston	81	May
	(Wholesaler's Germination Test 80%—12/1938)		
	Serafino Tarini, New Bedford		

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	Germination Found %	Month of Test 1939
	LETTUCE—Continued		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
412	Green Icehead (Wholesaler's Germination Test 85%, 1938—Packed for 1939) W. G. Moses, Bridgewater	89	May
	D. LANDRETH SEED CO., Bristol, Pa.		
748	New York, No. 12 Staples Hardware Co., Haverhill	96	May
	MICHAEL LEONARD SEED CO., Chicago, Ill.		
134F	Prizehead (California seed) (Wholesaler's Germination Test 85%—12 1938) W. E. Aubuchon Co., Milford	1	May
517	Black Seeded Simpson (Grown in California) (Wholesaler's Germination Test 85%) W. E. Aubuchon Co., Maynard	92	May
518	Big Boston (Grown in California) (Wholesaler's Germination Test 85%—12/1938) W. E. Aubuchon Co., Maynard	78	May
	NORTHRUP, KING & CO., Minneapolis, Minn.		
1037	Big Boston B. F. Hill Co., Salem	83	June
	THE PAGE SEED CO., Greene, N. Y.		
290	Iceberg Stone Hardware Co., Brockton	75	June
1225	Early Prizehead (Wholesaler's Germination Test 85%—1938, Packed for 1939) Carr Hardware Co., Pittsfield	98	June
	O. B. PARKS CO., Westfield, Mass.		
1120	Special N. Y. O. B. Parks Co., Westfield	75	July
	W. G. PEARSE & CO., Fall River, Mass.		
113F	N. Y. Wonderful W. G. Pearse & Co., Fall River	86	May
	GEORGE R. PEDRICK & SONS, Pedricktown, N. J.		
386	Boston Market Continental Nurseries, Franklin	77	June
	PERRY SEED CO., Boston, Mass.		
66F	N. Y. 847, Lot No. 3422 R Perry Seed Co., Boston	96	May
1098	Perry's Cabbage Head, No. 3382 Perry Seed Co., Boston	92	June
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
752	Iceberg, New York Improved Leavitt's Sport Shop, Haverhill	76	May
1142	Big Boston Frank Howard, Inc., Pittsfield	81	June
	ROSS BROS. CO., Worcester, Mass.		
185F	Black Seeded Tennisball Ross Bros. Co., Worcester	89	May
186F	New York, No. 12 Ross Bros. Co., Worcester	94	May
786	Iceberg Farm & Garden Supply Co., Uxbridge	85	May
	JOSEPH SORDILLO & SONS, Boston, Mass.		
989	Tennisball—European Seed Joseph Sordillo & Sons, Boston	37	June

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	Germination Found %	Month of Test 1939
	LETTUCE—Concluded		
	STERLING SEED CO., Minneapolis, Minn.		
700	Prizehead (Packed for 1939) J. J. Newberry Co., Whitman	85	May
	THORNTON & CROUCH, Lawrence, Mass.		
1048	N. Y. Wonderful Thornton & Crouch, Lawrence	55	June
	VAUGHAN'S SEED STORE, New York		
636	Big Boston Cogger's, Florist, Saugus	95	May
	F. H. WOODRUFF & SONS, Milford, Conn.		
147F	White Boston 1-6189—Unrivalled (Wholesaler's Germination Test 90%—12/1938) Middlesex County Farm Bureau, Waltham	70	May
424	Big Boston Winer's Hardware Store, Weymouth	80	May
	S. D. WOODRUFF & SON, Orange, Conn.		
664	May King Monroe's Seed Market, Attleboro	21	May
	WHOLESALER UNKNOWN		
659	New York, No. 12—Special Monroe's Seed Market, Attleboro	60	June
	MUSKMELON		
	Standard Germination 80%		
	COMSTOCK, FERRE & CO., Wethersfield, Conn.		
450	Bender's Surprise (2) Wm. F. Flynn Hardware Co., Attleboro	77	June
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.		
1026	Hale's Best, No. 112, Lot No. 21 A 39018 (Wholesaler's Germination Test 80%—12/1938) Eastern States Farmers' Exchange, Worcester	90	July
	J. J. H. GREGORY & SON, Marblehead, Mass.		
1073	Lake Champlain J. J. H. Gregory & Son, Marblehead	66	June
	F. H. WOODRUFF & SONS, Milford, Conn.		
725	Bender's Surprise Farm Service Stores, Middleboro	87	July
	ONIONS		
	Standard Germination 75%		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
85F	Yellow Globe Danvers, Lot No. 9156 F Joseph Breck & Sons, Corp., Boston	75	June
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.		
11F	Utah Valencia, Lot No. 4219 (Wholesaler's Germination Test 90%—12/1938) Eastern States Farmers' Exchange, Springfield	92	May
	THOMAS W. EMERSON CO., Boston, Mass.		
799	Red Wethersfield (2) O. M. Kindler Hardware Co., Webster	2	June
	FERRY-MORSE SEED CO., Detroit, Mich		
660	Red Wethersfield Monroe's Seed Market, Attleboro	76	June
	FRASER'S, Wellesley, Mass.		
1178	Yellow Globe Danvers (Wholesaler's Germination Test 90%—1/1939) Fraser's, Wellesley	88	June

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	Germination Found %	Month of Test 1939
	ONIONS—Continued		
	FREDONIA SEED CO., Fredonia, N. Y.		
1218	Yellow Globe Danvers	85	June
	Berkshire Hardware Co., Inc., Pittsfield		
	THOMAS J. GREY CO., Boston, Mass.		
48F	Danvers Yel. Globe Selected Strain	95	May
	Thomas J. Grey Co., Boston		
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.		
27F	Riverside Sweet Spanish, No. 726	94	May
	(Wholesaler's Germination Test 84%—1939)		
	Joseph Harris Co., Inc., Cambridge		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
1213	White Globe	89	June
	Berkshire Hardware Co., Inc., Pittsfield		
1215	Yellow Globe Danvers (2)	73	July
	Berkshire Hardware Co., Inc., Pittsfield		
	BUDD D. HAWKINS, Reading, Vt.		
879	Yellow Globe Danvers	84	June
	C. F. Maynard, Pepperell		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
196	Large Yellow Danvers	9	June
	(Wholesaler's Germination Test 65%—12 1938)		
	Ricard Grain Co., New Bedford		
	MICHAEL LEONARD SEED CO., Chicago, Ill.		
519	Yellow Globe Danvers—Grown in Idaho 1938	72	June
	(Wholesaler's Germination Test 85%—12 1938)		
	W. E. Aubuchon Co., Maynard		
1009	Yellow Globe Danvers	60	June
	(Wholesaler's Germination Test 85%—12 1938)		
	W. E. Aubuchon Co., Worcester		
	THE PAGE SEED CO., Greene, N. Y.		
1223	Prizetaker	97	June
	(Wholesaler's Germination Test 80%, 1938—Packed for 1939)		
	Carr Hardware Co., Pittsfield		
	O. B. PARKS CO., Westfield, Mass.		
1121	Danvers Yellow Globe	63	June
	O. B. Parks Co., Westfield		
	PERRY SEED CO., Boston, Mass.		
67F	Ailsa Craig 4557 FM	96	May
	Perry Seed Co., Boston		
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
125F	Yellow Globe Danvers	88	May
	H. S. Chadbourne & Co., Milford		
1145	Southport Yellow Globe	56	June
	Frank Howard, Inc., Pittsfield		
	ROSS BROS. CO., Worcester, Mass.		
1166	Early Yellow Globe	95	June
	Ross Bros. Co., Worcester		
	THORNTON & CROUCH, Lawrence, Mass.		
1049	Prizetaker	73	June
	Thornton & Crouch, Lawrence		
	F. H. WOODRUFF & SONS, Milford, Conn.		
1035	Yellow Globe Danvers (2)	62	July
	B. F. Hill Co., Salem		
1205	Southport White Globe (2)	46	July
	Peirson Hardware Co., Pittsfield		
	S. D. WOODRUFF & SONS, Orange, Conn.		
665	White Silver Skin	94	June
	Monroe's Seed Market, Attleboro		

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	Germination Found %	Month of Test 1939
	ONIONS—Concluded		
	WHOLESALER UNKNOWN		
397	White Portugal Brownell Hardware Co., Attleboro	33	June
	PARSLEY		
	Standard Germination 60%		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
1212	Moss Curled Berkshire Hardware Co., Inc., Pittsfield	64	June
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
354	Plain Semplice Bliss Hardware Co., Plymouth	16	June
	MICHAEL LEONARD SEED CO., Chicago, Ill.		
136F	Champion Moss Curled (Wholesaler's Germination Test 75%—12 1938) W. E. Aubuchon Co., Milford	65	May
	JOSEPH SORDILLO & SONS, Boston, Mass.		
992	Italian European Seed Joseph Sordillo & Sons, Boston	93	June
	F. H. WOODRUFF & SONS, Milford, Conn.		
622	Hamburg Rooted J. B. Sibley & Son, Ware	75	May
	PARSNIPS		
	Standard Germination 60%		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
86F	Hollow Crown, Lot No. 9233 X Joseph Breck & Sons, Corp., Boston	75	May
537	Golden Crown D. Cashman Hardware Co., Newburyport	50	July
	COMSTOCK, FERRE & CO., Wethersfield, Conn.		
206F	Champion Hollow Crown (Wholesaler's Germination Test 78%—1939) Ricard Grain Co., New Bedford	88	May
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.		
12F	Improved Hollow Crown, No. 618 (Wholesaler's Germination Test 80%—12/1938) Eastern States Farmers' Exchange, Springfield	79	May
	THOMAS W. EMERSON CO., Boston, Mass.		
168F	Cooper's Champion Hollow Crown Thomas W. Emerson Co., Boston	83	May
915	Hollow Crown Lincoln Sq., Paint & Hardware Co., Worcester	60	June
	EMPIRE SEED CO., Fredonia, N. Y.		
814	Hollow Crown N. Archer Groceries, West Andover	2	July
	FERRY-MORSE SEED CO., Detroit, Mich.		
1201	Hollow Crown Carlisle Hardware Co., Springfield	79	June
	FREDONIA SEED CO., Fredonia, N. Y.		
1217	Hollow Crown Berkshire Hardware Co., Inc., Pittsfield	87	June
	G. W. GARDINER & SONS, Fall River, Mass.		
1059	Guernsey G. W. Gardiner & Sons, Fall River	90	June

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	Germination Found %	Month of Test 1939
	PARSNIPS—Continued		
	J. J. H. GREGORY & SON, Marblehead, Mass.		
1036	Abbott's Yellow Crowned, Lot No. 1013 (2)	2	June
	B. F. Hill Co., Salem		
	THOMAS J. GREY CO., Boston, Mass.		
49F	Arlington Long Smooth	82	May
	Thomas J. Grey Co., Boston		
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.		
23F	Harris' Model	83	May
	(Wholesaler's Germination Test 88%—1939)		
	Joseph Harris Co., Inc., Cambridge		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
835	Champion Hollow Crown	73	June
	H. K. Webster, Lawrence		
	BUDD D. HAWKINS, Reading, Vt.		
141F	Improved Hollow Crown	48	June
	I. B. Barrows, Worcester		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
410	Hollow Crown	7	May
	(Wholesaler's Germination Test 60%—1938—Packed for 1939)		
	W. G. Moses, Bridgewater		
809	Hollow Crown	0	June
	(Wholesaler's Germination Test 60%—12 1937)		
	Casey's Pharmacy, Lawrence		
	D. LANDRETH SEED CO., Bristol, Pa.		
745	Hollow Crown	70	May
	Staples Hardware Co., Haverhill		
	MICHAEL LEONARD SEED CO., Chicago, Ill.		
859	Improved Hollow Crown	82	June
	F. X. Robichaud, Methuen		
	THE PAGE SEED CO., Greene, N. Y.		
293	Hollow Crown	52	May
	Stone Hardware Co., Brockton		
	W. G. PEARSE & CO., Fall River, Mass.		
114F	Hollow Crown	69	May
	(Wholesaler's Germination Test 54%—)		
	W. G. Pearse & Co., Fall River		
	GEORGE R. PEDRICK & SON, Pedricktown, N. J.		
388	Hollow Crown	83	May
	Continental Nurseries, Franklin		
	PERRY SEED CO., Boston, Mass.		
1099	Hollow Crown, Lot No. 4800	66	June
	Perry Seed Co., Boston		
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
126F	Hollow Crown—TS	60	May
	H. S. Chadbourne & Co., Milford		
	ROSS BROS. CO., Worcester, Mass.		
187F	Hollow Crown	91	May
	Ross Bros. Co., Worcester		
783	Hollow Crown	72	May
	W. C. Matteson Hardware Co., Blackstone		
	JOSEPH SORDILLO & SONS, Boston, Mass.		
987	Long Smooth (European Seed)	0	June
	Joseph Sordillo & Sons, Boston		
	THORNTON & CROUCH, Lawrence, Mass.		
1050	Hollow Crown	62	June
	Thornton & Crouch, Lawrence		

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	Germination Found %	Month of Test 1939
	PARSNIPS—Concluded		
	F. H. WOODRUFF & SONS, Milford, Conn.		
148F	All American 1-9101	75	May
	(Wholesaler's Germination Test 74%—11/1938)		
	Middlesex County Farm Bureau, Waltham		
1204	Hollow Crown	72	June
	Peirson Hardware Co., Pittsfield		
	WHOLESALER UNKNOWN		
401	Hollow Crown	58	May
	Brownell Hardware Co., Attleboro		
	PEAS		
	Standard Germination 80%		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
539	Hundredfold	96	June
	D. Cashman Hardware Co., Newburyport		
759	Sutton's Excelsior	95	June
	E. E. Bryant & Co., Hardware, Bradford		
	W. ATLEE BURPEE CO., Philadelphia, Pa.		
758	Blue Bantam	95	June
	E. E. Bryant & Co., Hardware, Bradford		
	COMSTOCK, FERRE & CO., Wethersfield, Conn.		
222	Gradus	95	June
	A. G. Patch Co., Boston		
277	Thomas Laxton	81	June
	Sargent's Grain & Supply Co., Brockton		
398	Blue Bantam	97	June
	Brownell Hardware Co., Attleboro		
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.		
1013	World Record, Lot No. 1119	91	June
	(Wholesaler's Germination Test 90%—12/1938)		
	Eastern States Farmers' Exchange, Worcester		
1014	Alderman Wrinkled, Lot No. 25 H 11117	80	June
	(Wholesaler's Germination Test 85%—12/1938)		
	Eastern States Farmers' Exchange, Worcester		
	THOMAS W. EMERSON CO., Boston, Mass.		
503	Telephone	87	June
	United Cooperative Society, Maynard		
512	Gradus	80	June
	Parker Hardware Co., Maynard		
795	Telephone	96	June
	W. R. Wallis, East Douglas		
	FOSTER FARRAR CO., Northampton, Mass.		
1156	Premium Gem	76	June
	Foster Farrar Co., Northampton		
	FRASER'S, Wellesley, Mass.		
1184	Laxton's Progress	96	June
	Fraser's Wellesley		
	G. W. GARDINER & SONS, Fall River, Mass.		
107F	Gradus	94	June
	(Wholesaler's Germination Test 90%—1/1939)		
	G. W. Gardiner & Sons, Fall River		
	J. J. H. GREGORY & SON, Marblehead, Mass.		
1066	Pioneer	93	June
	J. J. H. Gregory & Son, Marblehead		

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	Germination Found %	Month of Test 1939
	PEAS—Continued		
	THOMAS J. GREY CO., Boston, Mass.		
1004	Alderman	85	June
	Thomas J. Grey Co., Boston		
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.		
906	Laxton's Progress	94	June
	(Wholesaler's Germination 96%)		
	Joseph Harris Co., Inc., Cambridge		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
319	Dwarf Telephone	95	June
	(Wholesaler's Germination Test 90%—1 1939)		
	Faneuil Florist, 26 Dock Sq., Boston		
737	Laxton's Progress	93	June
	Benjamin Long, Pembroke		
832	Potlach	93	June
	H. K. Webster, Lawrence		
	D. LANDRETH SEED CO., Bristol, Pa.		
746	Laxtonian	87	June
	Staples Hardware Co., Haverhill		
	MICHAEL LEONARD SEED CO., Chicago, Ill.		
515	Sutton's Excelsior, Grown in Idaho 1938	91	June
	(Wholesaler's Germination Test 90%—12 1938)		
	W. E. Aubuchon Co., Inc., Maynard		
901	Laxton's Progress	90	June
	(Wholesaler's Germination Test 90%—12 1938)		
	United Cooperative Farmers, Inc., Fitchburg		
	THE PAGE SEED CO., Greene, N. Y.		
288	Gradus	88	June
	Stone Hardware Co., Brockton		
527	Dark Podded Telephone	89	June
	Seder & Gruber, Maynard		
1227	Gradus	80	June
	(Wholesaler's Germination Test Approx. 85%—1 1939)		
	Ford & Parker, Dalton		
	O. B. PARKS CO., Westfield, Mass.		
1118	Gradus	68	July
	O. B. Parks Co., Westfield		
	W. G. PEARSE & CO., Fall River, Mass.		
1063	Gradus	94	June
	W. G. Pearse & Co., Fall River		
	GEORGE R. PEDRICK & SONS, Pedricktown, N. J.		
385	Gradus (2)	81	June
	Continental Nurseries, Franklin		
	PERRY SEED CO., Boston, Mass.		
1095	Alderman Lot No. 5558-W	94	June
	Perry Seed Co., Boston		
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
127	Laxton's Progress	89	June
	H. S. Chadbourne & Co., Milford		
1138	Hundredfold	97	June
	Frank Howard, Inc., Pittsfield		
1139	Gradus	87	June
	Frank Howard, Inc., Pittsfield		
	ROSS BROS. CO., Worcester, Mass.		
781	Gradus	77	June
	W. C. Matteson Hardware Co., Blackstone		
1164	Laxtonian	97	June
	Ross Bros. Co., Worcester		

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer and Place Collected	Germination Found %	Month of Test 1939
	PEAS—Concluded		
	ROSS, BROS. CO., Worcester, Mass.		
1165	Telephone	92	June
	Ross Bros. Co., Worcester		
	THORNTON & CROUCH, Lawrence, Mass.		
1047	Laxton's Progress	85	June
	Thornton & Crouch, Lawrence		
	JOHN B. VARICK CO., Manchester, N. H.		
880	Dwarf Telephone	83	July
	(Wholesaler's Germination Test 90%)		
	R. F. Powell Hardware Co., Townsend		
	F. H. WOODRUFF & SONS, Milford, Conn.		
425	Thomas Laxton	92	June
	(Wholesaler's Germination Test 89%—1/1939)		
	Winer's Hardware Store, Weymouth		
706	Laxtonian	91	June
	Waldron Hardware Co., Taunton		
	F. H. WOODRUFF & SONS, Milford, Conn.		
765	Laxton's Progress	90	June
	D. J. Mahoney Hardware Co., Bradford		
958	Sutton's Excelsior (2)	72	June
	W. D. Miller Co., East Northfield		
	S. D. WOODRUFF & SONS, Orange, Conn.		
405	Blue Bantam	83	June
	Monroe's Seed Market, Attleboro		
740	Dwarf Champion	92	June
	(Wholesaler's Germination Test 90%—12/1938)		
	H. F. Davis, Hardware Co., Merrimac		
	WHOLESALER UNKNOWN		
1065	Sutton's Excelsior	64	July
	E. K. Murphy Hardware Co., Marblehead		
	PEPPERS		
	Standard Germination 60%		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
87	California Wonder, Lot No. 9161	93	May
	Joseph Breck & Sons, Corp., Boston		
	COMSTOCK, FERRE & CO., Wethersfield, Conn.		
773	Large Bull Nose (2)	56	July
	Villeneuve Hardware Co., Inc., Haverhill		
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.		
13	California Wonder, Lot No. 26 C 1615	79	May
	(Wholesaler's Germination Test 70%—12/1938)		
	Eastern States Farmers' Exchange, Springfield		
	THOMAS W. EMERSON CO., Boston, Mass.		
169	California Wonder	82	May
	Thomas W. Emerson Co., Boston		
	FERRY-MORSE SEED CO., Detroit, Mich.		
663	Sweet—World Beater	89	May
	Monroe's Seed Market, Attleboro		
1200	California Wonder	92	June
	Carlisle Hardware Co., Springfield		
	FRASER'S, Wellesley, Mass.		
1040	World Beater	85	June
	(Wholesaler's Germination Test 90%—1/1939)		
	B. F. Hill Co., Salem		
	THOMAS J. GREY CO., Boston, Mass.		
50	California Wonder	87	May
	Thomas J. Grey Co., Boston		

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	Germination Found %	Month of Test 1939
	PEPPERS—Concluded		
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.		
30	Harris Wonder, Lot No. 604 (Wholesaler's Germination Test 92%—1939) Joseph Harris Co., Inc., Cambridge	92	May
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
353	Red Bell or Bull Nose Bliss Hardware Co., Plymouth	23	May
	D. LANDRETH SEED CO., Bristol, Pa.		
744	World Beater Staples Hardware Co., Haverhill	64	May
	NORTHRUP, KING & CO., Minneapolis, Minn.		
1208	Large Sweet Spanish (Packed for 1939) Peirson Hardware Co., Pittsfield	46	June
	W. G. PEARSE & CO., Fall River, Mass.		
115	California Wonder W. G. Pearse & Co., Fall River	94	May
	PERRY SEED CO., Boston, Mass.		
68	California Wonder, No. 5030 H Perry Seed Co., Boston	97	May
	ROSS BROS. CO., Worcester, Mass.		
180	Bullnose Ross Bros. Co., Worcester	96	May
	PUMPKIN		
	Standard Germination 75%		
	THOMAS W. EMERSON CO., Boston, Mass.		
798	Sweet or Sugar (2) O. M. Kindler Hardware Co., Webster	67	July
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
1135	Small Sugar F. H. Turner & Co., Hardware, Gt. Barrington	79	July
	F. H. WOODRUFF & SONS, Milford, Conn.		
771	Small Sugar or Pie Haverhill Hardware & Supply Co., Haverhill	94	July
	S. D. WOODRUFF & SONS, Orange, Conn.		
982	Small Sugar, Lot No. 1868 Waskiewicz Bros., Hadley	79	July
	RADISH		
	Standard Germination 80%		
	JOSEPH BRECK & SONS, CORP., Boston		
538	French Breakfast D. Cashman Hardware Co., Newburyport	96	May
760	Scarlet Globe E. E. Bryant & Co., Hardware, Haverhill	93	June
	COMSTOCK, FERRE & CO., Wethersfield, Conn.		
402	Early Scarlet, Turnip Rooted Brownell Hardware Co., Attleboro	91	May
	THOMAS W. EMERSON CO., Boston, Mass.		
506	Early Scarlet Olive Shaped United Cooperative Society, Maynard	78	June
792	French Breakfast Uxbridge Hardware Co., Uxbridge	94	June

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab No	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	Germination Found %	Month of Test 1939
	RADISH—Continued		
	EMPIRE SEED CO., Fredonia, N. Y.		
812	Early Scarlet Globe	46	June
	N. Archer Groceries, N. Andover		
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.		
1028	Early Scarlet Globe, Lot No. 16219	100	June
	(Wholesaler's Germination Test 90%—1 1939)		
	Eastern States Farmers' Exchange, Worcester		
	FERRY-MORSE SEED CO., Detroit, Mich.		
662	Early Scarlet Turnip White Tipped	93	June
	Monroe's Seed Market, Attleboro		
	FRASER'S, Wellesley, Mass.		
797	Special Early Scarlet Globe	99	June
	(Wholesaler's Germination Test Approx. 95%—1 1939)		
	O. M. Kindler Hardware Co., Webster		
	FREDONIA SEED CO., Fredonia, N. Y.		
643	Early Scarlet White Tipped	98	June
	Macey's Market, Amesbury		
1220	Early Round Red	92	June
	Berkshire Hardware Co., Inc., Pittsfield		
	G. W. GARDINER & SONS, Fall River, Mass.		
1062	Radish (6)	83	June
	G. W. Gardiner & Sons, Fall River		
	GOOD SEED CO., Fredonia, N. Y.		
734	Early Scarlet Turnip	98	June
	L. Z. Thomas School, So. Hanson		
826	Early Scarlet Turnip White Tip	94	June
	Bradstreet School, No. Andover		
	J. J. H. GREGORY & SON, Marblehead, Mass.		
1074	Scarlet Globe, No. 1092	73	July
	J. J. H. Gregory & Son, Marblehead		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
1214	Early White Tipped Scarlet (2)	5	June
	Berkshire Hardware Co., Inc., Pittsfield		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
188	Early Red Turnip	89	May
	(Wholesaler's Germination Test 85%—12 1938)		
	Serafino Tarini, New Bedford		
	D. LANDRETH SEED CO., Bristol, Pa.		
749	French Breakfast	94	June
	Staples Hardware Co., Haverhill		
	NORTHRUP, KING & CO., Minneapolis, Minn.		
1038	French Breakfast	82	June
	(Packed for 1939)		
	B. F. Hill Co., Salem		
	THE PAGE SEED CO., Greene, N. Y.		
291	Early Scarlet Globe	99	May
	Stone Hardware Co., Brockton		
	GEORGE R. PEDRICK & SONS, Pedricktown, N. J.		
387	French Breakfast (2)	40	June
	Continental Nurseries, Franklin		
	STERLING SEED CO., Minneapolis, Minn.		
701	French Breakfast	81	June
	(Packed for 1939)		
	J. J. Newberry Co., Whitman		
	THORNTON & CROUCH, Lawrence, Mass.		
1053	Vick's Scarlet Globe	82	June
	Thornton & Crouch, Lawrence		

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	Germination Found %	Month of Test 1939
	RADISH—Concluded		
	VAUGHAN'S SEED STORE, N. Y.		
635	Icicle	74	July
	Cogger's, Florist, Saugus		
	F. H. WOODRUFF & SONS, Milford, Conn.		
727	Scarlet Globe	96	June
	Farm Service Store, Middleboro		
890	French Breakfast (2)	67	June
	Webber Hardware Co., Fitchburg		
1207	Rosy Gem	93	June
	Peirson Hardware Co., Pittsfield		
	RUTABAGA		
	Standard Germination 75%		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
88F	Skirving's Purple Top, No. 9186 F	96	July
	Joseph Breck & Sons, Corp., Boston		
	COMSTOCK, FERRE & CO., Wethersfield, Conn.		
448	Macomber	36	July
	Wm. F. Flynn Hardware Co., Attleboro		
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.		
14F	L. I. Neckless Purple Top, No. 5119	91	July
	(Wholesaler's Germination Test 85%—2 1939)		
	Eastern States Farmers' Exchange, Springfield		
	THOMAS W. EMERSON CO., Boston, Mass.		
514	American Purple Top	91	July
	Parker Hardware Co., Maynard		
	G. W. GARDINER & SONS, Fall River, Mass.		
106	Macomber	93	July
	(Wholesaler's Germination Test 90%—1 1939)		
	G. W. Gardiner & Sons, Fall River.		
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.		
25F	Improved Long Island Special Neckless Strain	89	July
	(Wholesaler's Germination Test 92%—1939)		
	Joseph Harris Co., Inc., Cambridge		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
1226	Macomber	47	July
	Carr Hardware Co., Pittsfield		
	D. LANDRETH SEED CO., Bristol, Pa.		
1190	Improved Yellow Fleshed Purple Top	88	July
	P. A. Richard Hardware Co., Spencer		
	NORTHRUP, KING & CO., Minneapolis, Minn.		
1039	American Purple Top	86	July
	(Packed for 1939)		
	B. F. Hill Co., Salem		
	O. B. PARKS CO., Westfield, Mass.		
1122	St. Andrew	39	July
	O. B. Parks Co., Westfield		
	PERRY SEED CO., Boston, Mass.		
69F	American Purple Top Improved, No. 7133 CT	84	July
	SALSIFY		
	Standard Germination 70%		
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.		
1020	Mammoth Sandwich Island 31 A 1325	97	June
	(Wholesaler's Germination Test 85%—1 1939)		
	Eastern States Farmers' Exchange, Worcester		

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	Germination Found %	Month of Test 1939
	SALSIFY—Concluded		
	FERRY-MORSE SEED CO., Detroit, Mich.		
1199	Mammoth Sandwich Island (Packed for 1939) Carlisle Hardware Co., Springfield	91	June
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
1122	Mammoth Sandwich Island (7) Carr Hardware Co., Pittsfield	0	June
	PERRY SEED CO., Boston, Mass.		
1105	Mammoth Sandwich Island, No. 5744 Perry Seed Co., Boston	92	June
	SPINACH		
	Standard Germination 60%		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
89F	King of Denmark, No. 8170 Joseph Breck & Sons, Corp., Boston	82	May
903	Giant Round Thick Leaf Fletcher Hardware Co., Watertown	90	June
	W. ATLEE BURPEE CO., Philadelphia, Pa.		
751	Nobel Leavitt's Sport Shop, Haverhill	70	June
	COMSTOCK, FERRE & CO., Wethersfield, Conn.		
284	Bloomsdale Savoy (2) Sargent Grain & Supply Co., Brockton	51	May
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.		
15F	Long Standing Bloomsdale, Lot No. 32 D 11017 (Wholesaler's Germination Test 75%—12/1938) Eastern States Farmers' Exchange, Springfield	67	May
	THOMAS W. EMERSON CO., Boston, Mass.		
170F	Summer Savoy Thomas W. Emerson Co., Boston	86	May
510	Bloomsdale Parker Hardware Co., Maynard	93	May
1078	Bloomsdale Savoy A. H. Whidden & Son, Inc., Peabody	85	June
	G. W. GARDINER & SONS, Fall River, Mass.		
105F	Aristocrat, No. 5 G. W. Gardiner & Sons, Fall River	86	May
	THOMAS J. GREY CO., Boston, Mass.		
52F	Long Standing Savoy Thomas J. Grey Co., Boston	88	May
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.		
19F	Long Standing Bloomsdale, No. 471 (Wholesaler's Germination Test 84%—) Joseph Harris Co., Inc., Cambridge	90	May
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
860	Giant Thick Leaf Montgomery Hardware Co., Ayer	84	June
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
198	Round Leaf (Wholesaler's Germination Test 75%—12/1938) Ricard Grain Co., New Bedford	23	June
	D. LANDRETH SEED CO., Bristol, Pa.		
1191	Bloomsdale Long Standing P. A. Richard Hardware Co., Spencer	61	July

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	Germination Found %	Month of Test 1939
	SPINACH—Concluded		
	MICHAEL LEONARD SEED CO., Chicago, Ill.		
844	Long Standing	91	June
	F. X. Robichaud Co., Methuen		
	W. G. PEARSE & CO., Fall River, Mass.		
116F	Long Standing Savoy	77	May
	W. G. Pearse & Co., Fall River		
	PERRY SEED CO., Boston, Mass.		
70F	Viking, Lot No. 6211—51G	87	May
	Perry Seed Co., Boston		
74F	King of Denmark, Lot No. 6104 T	80	May
	Perry Seed Co., Boston		
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
120F	Round Thick Leaf SE	82	May
	H. S. Chadbourne & Co., Milford		
	ROSS BROS. CO., Worcester, Mass.		
182F	Bloomsdale Long Standing Spinach	87	May
	Ross Bros. Co., Worcester		
	F. H. WOODRUFF & SONS, Milford, Conn.		
149F	Bloomsdale Long Standing Savoy, No. 12900	89	May
	Middlesex County Farm Bureau, Waltham		
	S. D. WOODRUFF & SONS, Orange, Conn.		
743	Bloomsdale Savoy, No. 1279	85	June
	(Wholesaler's Germination Test Approx. 78%—12 1938)		
	H. F. Davis Hardware Co., Merrimac		
	SQUASH		
	Standard Germination 75%		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
90F	Giant Summer Straight Neck 9013 R	95	June
	Joseph Breck & Sons, Corp., Boston		
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.		
16F	Ea. Prolific Straight Neck, Lot No. 619	98	June
	(Wholesaler's Germination Test 90%—1 1939)		
	Eastern States Farmers' Exchange, Springfield		
1012	Vermont Hubbard, No. 14918	97	July
	(Wholesaler's Germination Test 85%—1 1939)		
	Eastern States Farmers' Exchange, Worcester		
	THOMAS W. EMERSON CO., Boston, Mass.		
802	Ea. Summer Crookneck	90	July
	Harry Seder, Webster		
	FERRY-MORSE SEED CO., Detroit, Mich.		
1197	Hubbard	93	July
	Carlisle Hardware Co., Springfield		
	FOSTER FARRAR CO., Northampton, Mass.		
1159	Blue Hubbard	100	July
	Foster Farrar Co., Northampton		
	FRASER'S, Wellesley, Mass.		
1179	Warren Turban	83	July
	(Wholesaler's Germination Test 85%, (Approx.) 1 1939)		
	Fraser's, Wellesley		
	J. J. H. GREGORY & SON, Marblehead, Mass.		
1072	Victor	90	July
	J. J. H. Gregory & Son, Marblehead		
	THOMAS J. GREY CO., Boston, Mass.		
53F	Blue Hubbard	94	June
	Thomas J. Grey Co., Boston		

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	Germination Found %	Month of Test 1939
	SQUASH—Concluded		
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.		
22F	Ea. Yel. Prolific, No. 681	99	June
	(Wholesaler's Germination Test 92%—1939)		
	Joseph Harris Co., Inc., Cambridge		
	CHARLES C. HART SEED CO., Wethersfield Conn.		
834	Blue Hubbard	82	July
	H. K. Webster, Lawrence		
970	Giant Summer Crookneck	95	July
	Berkshire Hardware & Farm Equipment Co., No. Adams		
	D. LANDRETH SEED CO., Bristol, Pa.		
1187	Blue Hubbard	84	July
	P. A. Richard Hardware Co., Spencer		
	MICHAEL LEONARD SEED CO., Chicago, Ill.		
1010	Summer Crookneck	84	July
	(Wholesaler's Germination Test 85%—12/1938)		
	Grown in Nebraska 1938		
	W. E. Aubuchon Co., Inc., Worcester		
	O. B. PARKS CO., Westfield, Mass.		
1125	Improved Hubbard	91	July
	O. B. Parks Co., Westfield		
	PERRY SEED CO., Boston, Mass.		
71F	Ea. Summer Crookneck, Lot No. 6207 R	83	June
	Perry Seed Co., Boston		
1097	Warren Turban, Lot No. 6443-P	98	July
	Perry Seed Co., Boston		
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
1141	Improved Hubbard	86	July
	Frank Howard, Inc., Pittsfield		
	ROSS BROS. CO , Worcester, Mass.		
1163	Golden Hubbard	97	July
	Ross Bros. Co., Worcester		
	JOSEPH SORDILLO & SONS, Boston, Mass.		
994	Italian Marrow	73	July
	Joseph Sordillo & Sons, Boston		
	F. H. WOODRUFF & SONS, Milford, Conn.		
621	Ea. Summer Crookneck	94	July
	J. B. Sibley & Son, Ware		
767	Red or Golden Hubbard	81	July
	Haverhill Hardware & Supply Co., Haverhill		
	S. D. WOODRUFF & SONS, Orange, Conn.		
667	Golden Crook Neck, Lot No. 1626	82	July
	(Wholesaler's Germination Test Approx. 78%—12 1938)		
	Monroe's Seed Market, Attleboro		
	SWISS CHARD		
	Standard Germination 65%		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
394	Lucullus	86	June
	A. T Chase Corporation, Dedham		
	COMSTOCK, FERRE & CO., Wethersfield, Conn.		
678	Lucullus (2)	79	June
	Mansfield Lumber Co , Mansfield		
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.		
1023	Lucullus 10 A 11017	91	June
	(Wholesaler's Germination Test 86%—12 1938)		
	Eastern States Farmers' Exchange, Worcester		

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	Germination Found %	Month of Test 1939
	SWISS CHARD—Concluded		
	THOMAS W. EMERSON CO., Boston, Mass.		
511	Broad Ribbed Green	94	June
	Parker Hardware Co., Maynard		
1043	Lucullus	95	June
	Waters & Brown, Salem		
	FERRY-MORSE SEED CO., Detroit, Mich.		
1196	Lucullus	97	June
	Carlisle Hardware Co., Springfield		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
382	Lucullus	98	June
	Cleveland Hardware Co., Walpole		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
350	Sea Kale Beet	75	June
	Bliss Hardware Co., Plymouth		
	MICHAEL LEONARD SEED CO., Chicago, Ill.		
843	Silver	69	June
	F. X. Robichaud Co., Methuen		
	THE PAGE SEED CO., Greene, N. Y.		
1224	Beet	94	June
	(Wholesaler's Germination Test Approx. 80%—1938)		
	Packed for 1939		
	Carr Hardware Co., Pittsfield		
	VAUGHAN'S SEED STORE, N. Y.		
633	Cut and Come Again	75	June
	Cogger's, Florist, Saugus		
	F. H. WOODRUFF & SONS, Milford, Conn.		
769	Broad Rib Green	68	June
	Haverhill Hardware & Supply Co., Haverhill		
	TOMATO		
	Standard Germination 80%		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
91	Bonny Best, No. 9149 F	88	July
	Joseph Breck & Sons, Corp., Boston		
755	Bonny Best	83	July
	Ellison Coal & Grain Co., Haverhill		
	COMSTOCK, FERRE & CO., Wethersfield, Conn.		
208	Marglobe	84	July
	Ricard Grain Co., New Bedford		
400	Marglobe	91	July
	Brownell Hardware Co., Attleboro		
772	Bonny Best	80	July
	Villeneuve Hardware Co., Inc., Haverhill		
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.		
17	Stone 34 C 4324	91	July
	(Wholesaler's Germination Test 85%—12 1938)		
	Eastern States Farmers' Exchange, Springfield		
1022	Pritchard 34 B 12016	93	July
	(Wholesaler's Germination Test 85%—12 1938)		
	Eastern States Farmers' Exchange, Worcester		
	THOMAS W. EMERSON CO., Boston, Mass.		
1041	Dwarf Champion	89	July
	Waters & Brown, Salem		
	EMPIRE SEED CO., Fredonia, N. Y.		
811	Earliana	63	July
	(Wholesaler's Germination Test 50%)		
	N. Archer Groceries, No. Andover		

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	Germination Found %	Month of Test 1939
	TOMATO—Continued		
	FERRY-MORSE SEED CO., Detroit, Mich.		
1202	Marglobe	90	July
	Carlisle Hardware Co., Springfield		
	FOSTER FARRAR CO., Northampton, Mass.		
1153	Pritchard	80	July
	Foster Farrar Co., Northampton		
	FRASER'S, Wellesley, Mass.		
1180	Master Marglobe	95	July
	(Wholesaler's Germination Test Approx. 90%—1 1939)		
	Fraser's, Wellesley		
	FREDONIA SEED CO., Fredonia, N. Y.		
1219	Earliana	86	July
	Berkshire Hardware Co., Inc., Pittsfield		
	G. W. GARDINER & SONS, Fall River, Mass.		
1055	Ea. Prolific	57	July
	G. W. Gardiner & Sons, Fall River		
	J. J. H. GREGORY & SON, Marblehead, Mass.		
1069	Stone	82	July
	J. J. H. Gregory & Son, Marblehead		
	THOMAS J. GREY CO., Boston, Mass.		
54	Bonny Best	94	July
	Thomas J. Grey Co., Boston		
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.		
24	Rutgers 768	96	July
	(Wholesaler's Germination Test 96%—1939)		
	Joseph Harris Co., Inc., Cambridge		
25	Nystate, No. 746	93	July
	(Wholesaler's Germination Test 88%—1939)		
	Joseph Harris Co., Inc., Cambridge		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
1192	New Stone	81	July
	W. C. Ring Hardware Co., Palmer		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
195	Acme	49	July
	(Wholesaler's Germination Test 75%—12 1938)		
	Ricard Grain Co., New Bedford		
	MICHAEL LEONARD SEED CO., Chicago, Ill.		
845	Marglobe	98	July
	F. X. Robichaud Co., Methuen		
	THE PAGE SEED CO., Greene, N. Y.		
292	Bonny Best	95	July
	Stone Hardware Co., Brockton		
	O. B. PARKS CO., Westfield, Mass.		
1123	Marglobe	88	July
	O. B. Parks Co., Westfield		
	W. G. PEARSE & CO., Fall River, Mass.		
1064	Dwarf Champion	92	July
	W. G. Pearse & Co., Fall River		
	PERRY SEED CO., Boston, Mass.		
72	Comet 6554 H	89	July
	Perry Seed Co., Boston		
1100	Dwarf Stone 6671-H	90	July
	Perry Seed Co., Boston		
	NORTHRUP, KING & CO., Minneapolis, Minn.		
1211	Bonny Best	89	July
	(Packed for 1939)		
	Peirson Hardware Co., Pittsfield		

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	Germination Found %	Month of Test 1939
	TOMATO—Concluded		
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
1143	Marglobe	80	July
	Frank Howard, Inc., Pittsfield		
	ROSS BROS. CO., Worcester, Mass.		
1162	Bonny Best	85	July
	Ross Bros. Co., Worcester		
	JOSEPH SORDILLO & SONS, Boston, Mass.		
990	Ponderosa	88	July
	Joseph Sordillo & Sons, Boston		
	THORNTON & CROUCH, Lawrence, Mass.		
1054	Bonny Best	93	July
	Thornton & Crouch, Lawrence		
	F. H. WOODRUFF & SONS, Milford, Conn.		
150	Certified Marglobe, Lot No. 13551	86	July
	(Wholesaler's Germination Test 91%—Approx.—12/1938)		
	Middlesex County Farm Bureau, Waltham		
763	John Baer	88	July
	D. J. Mahoney Hardware Co., Bradford		
768	Earliana	86	July
	(Wholesaler's Germination Test 89%—12/1938)		
	Haverhill Hardware & Supply Co., Haverhill		
	TURNIP		
	Standard Germination 80%		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
92F	Red or Purple Top Strap Leaf, No. 9183	93	July
	Joseph Breck & Sons, Corp., Boston		
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.		
18F	Purple Top White Globe 35 B 1115	92	July
	(Wholesaler's Germination Test 85%—12/1938)		
	Eastern States Farmers' Exchange, Springfield		
	THOMAS W. EMERSON CO., Boston, Mass.		
171F	Purple Top White Globe	96	July
	Thomas W. Emerson Co., Boston		
793	White Rock	72	July
	Uxbridge Hardware Co., Uxbridge		
	FERRY-MORSE SEED CO., Detroit, Mich.		
1077	Purple Top White Globe	97	July
	Economy Hardware Store, Peabody		
	FRASER'S, Wellesley, Mass.		
1181	Early Purple Top Strap Leaf	93	July
	(Wholesaler's Germination Test 90%—1939)		
	Fraser's Wellesley		
	J. J. H. GREGORY & SON, Marblehead, Mass.		
1075	Purple Top Globe	62	July
	J. J. H. Gregory & Son, Marblehead		
	THOMAS J. GREY CO., Boston, Mass.		
55F	Purple Top White Globe	91	July
	Thomas J. Grey Co., Boston		
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.		
21F	Purple Top White Globe, No. 588	96	July
	(Wholesaler's Germination Test 96%)		
	Joseph Harris Co., Inc., Cambridge		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
455	Red Top Strap Leaf	98	July
	Hammond Hardware Co., Attleboro		

1939 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

VEGETABLES — Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer, and Place Collected	Germination Found %	Month of Test 1939
	TURNIP—Concluded		
	BUDD D HAWKINS, Reading, Vt.		
878	New White Sweet German	86	July
	C. F. Maynard, Pepperell		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
351	Navone	15	July
	Bliss Hardware Co., Plymouth		
411	Yellow Globe	97	July
	(Wholesaler's Germination Approx. 85%—12/1938)		
	(Packed for 1939)		
	W. G. Moses, Bridgewater		
	D. LANDRETH SEED CO., Bristol, Pa.		
1186	White Egg	78	July
	P. A. Richard Hardware Co., Spencer		
	W. G. PEARSE & CO., Fall River, Mass.		
117F	White Egg	97	July
	W. G. Pearse & Co., Fall River		
	PERRY SEED CO., Boston, Mass.		
73F	Purple Top White Globe 7055 C T	94	July
	Perry Seed Co., Boston		
	ROSS BROS. CO., Worcester, Mass.		
785	Yellow Globe (2)	48	July
	Farm & Garden Supply Co., Uxbridge		
	F. H. WOODRUFF & SONS, Milford, Conn.		
726	Purple Top	86	July
	Farm Service Store, Middleboro		
889	White Egg	93	July
	Webber Hardware Co , Fitchburg		
	WATERMELON		
	Standard Germination 70%		
	COMSTOCK, FERRE & CO., Wethersfield, Conn.		
1127	Sweetheart (2)	73	June
	Bryan Hardware Co., Westfield		
	F. H. WOODRUFF & SONS, Milford, Conn.		
708	Tom Watson	89	June
	Waldron Hardware Co , Taunton		

TYPE AND VARIETY STUDIES OF VEGETABLES

Conducted in Conjunction with the Department of Olericulture,

Grant B. Snyder, Professor

Many people who grow vegetables either on a commercial basis or in the home garden buy their seed from the neighborhood store. These stores and shops in the neighborhood community are, therefore, important sources of garden seeds. The salesmen in such stores very frequently are not well acquainted with variety type, germination, and maturity season of the seeds they sell. In order to check on the performance of packet and bulk seed sold by these merchants, the Department of Olericulture has cooperated with the Seed Laboratory in making germination tests and in checking the trueness to name and performance of samples purchased on the open market by State Seed Inspectors.

During the 1939 season 193 lots were planted in the trial grounds, including sweet corn, squash, cucumbers, rutabagas, turnips, parsnips, parsley, onions, carrots, beets, beans, lettuce, spinach, cabbage, and broccoli.

The soil of the trial plots was of a sandy loam type. It was fertilized properly and thoroughly prepared prior to seedage or plant setting. The growing season was somewhat variable in that June and July were very dry and August most nearly normal as to rainfall. The dry weather may have had some bearing on seed germination of some of the kinds of vegetables planted.

In general the field germination of most lots was sufficient to produce a satisfactory stand of plants. On the other hand, germination of cucumbers was only fair; of parsnips mainly fair to poor; of onions mostly poor; and of carrots fair to good. A rather wide range of germination was noted in the same varieties planted under identical conditions, indicating either poor seed or improper storage conditions in transit or in the store where they were sold.

The various lots were mostly within the type range for the variety specified on the seed packet. Some lots showed more variation in type than was desirable, but could not be considered definitely off type. Other lots were definitely not true to type.

Only those lots of seed which were found to be slightly or definitely off type are included in the following table. The percentages listed mean actual numbers of plants that were within the type range and developed, for the variety in question, a reasonably satisfactory plant. The source of the seed and the laboratory germination records are to be found in the table on pages 47 to 82, where the lots of seed used in the field tests are identified by the letter "F" added to the laboratory number. Those seeds tested in the field and not included in the following table were found 100% true to type.

FIELD TESTS OF VEGETABLE SEEDS

Lab. No.	Kind of Seed and Variety	True to Type Percent	Remarks
	BEANS		
496 F	Sure Crop Wax	98	2% plants with green pods
393 F	Long Yellow Six Weeks	0	100% alike, but are Bountiful
287 F	Pencil Pod Black Wax	96	2 plants with green pod
550 F	Ward Kidney Wax	0	100% alike; not Kidney Wax type
403 F	Yellow Six Weeks	0	100% alike, but are Bountiful
	BEETS		
77 F	Crosby's Egyptian, No. 9107 F	96	
204 F	Early Wonder	92	
282 F	Detroit Dark Red	96	2 plants bolted
343 F	Crosby's Egyptian	92	
340 F	Boston Egyptian	92	
240 F	Detroit Dark Red	92	
100 F	Crosby's Egyptian	92	
495 F	Detroit Dark Red	92	
39 F	Crosby's Egyptian	88	
34 F	Crosby's Egyptian	96	
300 F	Detroit Dark Red	92	4% Swiss Chard
138 F	Detroit Dark Red	96	
190 F	Extra Early Egyptian Blood Turnip	92	
266 F	Detroit Dark Red	96	Too flattened
110 F	Detroit Dark Red	92	Too flattened
59 F	Crosby's Egyptian	88	
551 F	Crosby's Egyptian	92	
179 F	Early Wonder	84	
143 F	Woodruff's Early Wonder 1-094	86	
	CABBAGE		
61 F	Penn. State Ballhead No. 1580	85	
	CARROTS		
199 F	Hutchinson	92	
205 F	Improved Danvers	92	
344 F	Improved Long Orange	88	
7 F	Nantes Long No 2127	96	
161 F	Chantenay	94	
162 F	Hutchinson	88	
341 F	Chantenay	94	
249 F	Red Cored	90	
103 F	Danvers Half Long	96	
44 F	Scarlet Nantes	90	
140 F	Red Cored Chantenay	94	
32 F	Nantes	94	
299 F	Danvers Half Long Stump Rooted	88	Considerably stump rooted
191 F	Danvers Half Long	96	
135 F	Improved Long Orange	84	
267 F	Danvers Half Long	90	
221 F	Improved Danvers Half Long		Uniform type, but more like Long Orange than Danvers
112 F	Chantenay	96	
63 F	Hutchinson No. 2150 F. M.	96	
123 F	Danvers Half Long	94	
276 F	Danvers Half Long	96	
144 F	Hutchinson 1-6172	90	
145 F	Danvers Half Long	96	
270 F	Danvers Half Long	96	

FIELD TESTS OF VEGETABLE SEEDS—Continued

Lab. No.	Kind of Seed and Variety	True to Type Percent	Remarks
	CORN		
163 F	Marcross	0	100% alike, but all 8-rowed Not typical of Marcross
	LETTUCE		
203 F	New York No. 12	98	
113 F	New York	98	
186 F	New York No. 12	98	
	PARSNIP		
86 F	Hollow Crown 9233X	85	
112 F	Improved Hollow Crown	95	
168 F	Cooper's Champion Hollow Crown	95	
23 F	Harris Model No. 111	96	
141 F	Imperial Hollow Crown	92	
49 F	Arlington Long Smooth	90	
114 F	Hollow Crown	90	
126 F	Hollow Crown TS	88	
	PEAS		
107 F	Gradus	98	Very tall plants
	RUTABAGA		
69 F	American Purple Top Imp. 7133 C. T.	96	
	SPINACH		
89 F	King of Denmark No. 8170	98	
15 F	Long Standing B2T11017	98	
19 F	Long Standing Bloomsdale No. 471	96	
116 F	Long Standing Savoy	98	
70 F	Viking No. 6211-51G	96	
120 F	Round Thick Leaf	98	Very quick bolting
129 F	Bloomsdale Long Standing Savoy	96	Quick bolting
	TURNIP		
92 F	Red or Purple Top Strap Leaf No. 9183	88	Cut leaf, off color, elongate root
18 F	Purple Top White Globe	96	White top, elongate root
171 F	Purple Top White Globe	86	Multiple top, white top, elongate root
55 F	Purple Top White Globe	96	White top, elongate root
21 F	Purple Top White Globe No. 558	92	Extreme elongate root
117 F	White Egg	94	Very elongated
73 F	Purple Top White Globe 7055CT	90	Multiple top, elongate root

STUDIES OF FLOWER SEEDS

Conducted by the Department of Floriculture
Clark L. Thayer, Professor

For a fourth season the Department of Floriculture has cooperated with the Seed Laboratory in a test to determine the quality of seed sold in retail seed stores, garages, hardware stores, groceries, schools, and other retail outlets. The seeds, which were collected by the State Seed Inspector, were tested for germination and performance under field conditions.

Seeds of 224 lots, including 42 genera and packeted by 30 different wholesalers, were classified as follows:

Ageratum	6	Helichrysum (Strawflower)	3
Alyssum	6	Iberis (Candytuft)	6
Antirrhinum (Snapdragon)	5	Impatiens (Balsam)	7
Arctotis (African Daisy)	1	Ipomoea (including Morning Glory)	6
Calendula	9	Lupinus (Lupine)	4
Calliopsis	1	Matthiola (Stock)	4
Callistephus (Aster)	11	Mirabilis (Four O'Clock)	4
Celosia (including Cockscomb)	3	Papaver (Poppy)	7
Centaurea (including Bachelor Button)	11	Petunia	11
Cheiranthus (Wallflower)	1	Phlox	5
Chrysanthemum	2	Portulaca	6
Cleome (Spider Plant)	1	Reseda (Mignonette)	5
Cosmos	9	Rudbeckia	1
Delphinium (Larkspur)	8	Salpiglossis	6
Dianthus (including Carnation and Pink)	7	Salvia	4
Didicus (Blue Lace Flower)	2	Scabiosa	6
Eschscholtzia (California Poppy)	3	Tagetes (Marigold)	11
Euphorbia (Snow on the Mountain)	1	Tropaeolum (Nasturtium)	11
Gaillardia	4	Verbena	6
Gilia	1	Zinnia	16
Gypsophila (Baby's Breath)	1		
Helianthus (Sunflower)	2	TOTAL	224

No germination tests were made in the laboratory on any of the lots of seed collected, since many of the packets contained too small a quantity of seed for both field and laboratory tests. Remarks on germination observed in the field are comparative and not rated on a percentage basis.

Conditions for field work were very much better during the past season than in the previous year. Total rainfall for the months of June, July, August, and September in 1939 was 12.37 inches as compared with 32.49 inches for the same period in 1938.[1]

The seeds were sown between June 6 and 8, approximately two weeks earlier than in 1938. The date of the first frost in 1939 was October 15, which therefore provided a long growing period.

When the number of seeds permitted, rows fifteen feet long were sown. Germination was rated as "good" if the seeds germinated in approximately two-thirds of the row; "fair" between one-third and two-thirds; "poor" for one-third or less. Performance was designated as "satisfactory" if the varieties were true to name, producing only a low percentage of plants which were not true to form or color (one-third or less); "fair" between one-third and two-thirds not true; and "not satisfactory" if less than one-third was true to name or did not produce satisfactory plants for providing sufficient data.

As far as possible trueness-to-type was determined, but since many lots were described as mixtures or did not carry varietal names, a wide range in color and form was permissible.

[1]Data on precipitation and frosts were taken from the monthly bulletins, "Meteorological Observations," of the Massachusetts Agricultural Experiment Station.

FLOWER SEED INSPECTION

Lab. No.	Variety and Source	Field Tests: Germination	Field Tests: Performance
	AGERATUM		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
535F	Blue Perfection Joseph Breck & Sons, Corp., Boston	Good	Satisfactory
	CROSMAN SEED CO., INC., East Rochester, N. Y.		
432F	Dwarf Blue Cap S. S. Kresge Co., Quincy, Mass.	Good	Satisfactory
	THOMAS J. GREY CO., Boston, Mass.		
225F	Blue Ball Thomas J. Grey Co., Boston	Poor	Not satisfactory
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
561F	Blue Perfection The Smith Hardware Co., Lowell	Fair	Satisfactory
	JEROME B. RICE, JR., INC., Shushan, N. Y.		
589F	Annual Mixed Herbert M. Lawrence Hardware Co., Lexington	Fair	Satisfactory
	THORNTON & CROUCH, Lawrence, Mass.		
568F	Gold Medal Thornton & Crouch, Lawrence	Fair	Satisfactory
	ALYSSUM		
	BODGERS SEEDS, LTD., El Monte, Cal.		
658F	Sweet-Maritimum Monroe's Seed Market, Attleboro	Good	Satisfactory
	CROSMAN SEED CO., INC., East Rochester, N. Y.		
433F	Carpet of Snow S. S. Kresge Co., Quincy	Good	Satisfactory
	THOMAS W. EMERSON CO., Boston, Mass.		
313F	Sweet Thomas W. Emerson Co., Boston	Good	Satisfactory
	EMPIRE SEED CO., INC., Fredonia, N. Y.		
478F	Sweet Chelmsford Square Garage, Chelmsford	Good	Satisfactory
	FREDONIA SEED CO., Fredonia, N. Y.		
442F	Little Gem W. R. Armstrong Co., Attleboro	Good	Satisfactory
	J. J. H. GREGORY & SON, Marblehead, Mass.		
497F	Little Gem J. J. H. Gregory & Son, Marblehead	Good	Satisfactory
	ASTER		
	COBURN SEED & SUPPLY CO., Chelmsford, Mass.		
482F	Queen of the Market Coburn Seed & Supply Co., Chelmsford	Good	Satisfactory
	THOMAS W. EMERSON CO., Boston, Mass.		
310F	Improved Crego Wilt-Resistant Thomas W. Emerson Co., Boston	Poor	Not satisfactory Did not bloom
	FRASER'S, Wellesley, Mass.		
325F	Best Mixed Crego or Ostrich Plume Fraser's, Wellesley	Fair	Satisfactory
	FREDONIA SEED CO., Fredonia, N. Y.		
243F	Tall Branching Finest Mixed Charles F. Stone Hardware Co., Dorchester	Fair	Satisfactory
	GOOD SEED CO., Fredonia, N. Y.		
816F	Choice Colors—Wilt Resistant Bradstreet School, No. Andover	Poor	Not satisfactory Did not bloom
	J. J. H. GREGORY & SON, Marblehead, Mass.		
499F	Astermum Mixed J. J. H. Gregory & Son, Marblehead	Good	Not satisfactory Did not bloom

FLOWER SEED INSPECTION — Continued

Lab. No.	Variety and Source	Field Tests: Germination	Field Tests: Performance
	ASTER—Concluded		
	THOMAS J. GREY CO., Boston, Mass.		
228F	New Super-Giant Los Angeles Shell Pink Thomas J. Grey Co., Boston	Fair	Satisfactory
	THE PAGE SEED CO., Greene, N. Y.		
349F	Branching Comet Plymouth Rock Hardware Co., Plymouth	Good	Satisfactory
	PERRY SEED CO., Boston, Mass.		
212F	Queen of the Market, Dark Blue Wilt Resistant Perry Seed Co., Boston	Fair	Not satisfactory Did not bloom
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
544F	Giant Branching, Mixed Colors Martin W. Duggan Co., Newburyport	Good	Satisfactory
	STERLING SEED CO., Minneapolis, Minn.		
460F	Tall Double Mixed J. J. Newberry Co., Attleboro	Good	Not satisfactory Did not bloom
	BABY'S BREATH		
	GOOD SEED CO., Fredonia, N. Y.		
818F	Giant White Annual Bradstreet School, No. Andover	Good	Satisfactory
	BACHELOR BUTTON		
	CROSMAN SEED CO., INC., East Rochester, N. Y.		
434F	Double—Mixed Colors S. S. Kresge Co., Quincy	Good	Satisfactory Only two colors
	FREDONIA SEED CO., Fredonia, N. Y.		
443F	Centaurea Mixed W. R. Armstrong Co., Attleboro	Good	Satisfactory Six colors
	GOOD SEED CO., Fredonia, N. Y.		
819F	Double Choice Colors Bradstreet School, No. Andover	Fair	Satisfactory Only three colors
	J. J. H. GREGORY & SON, Marblehead, Mass.		
500F	Centaurea—Double Blue J. J. H. Gregory & Son, Marblehead	Good	Satisfactory
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
563F	Double Mixed Centaurea The Smith Hardware Co., Lowell	Good	Satisfactory Only three colors
	NORTHRUP, KING & CO., Minneapolis, Minn.		
580F	Double Mixed Colors F. W. Woolworth Co., Woburn	Fair	Satisfactory Four colors
	PERRY SEED CO., Boston, Mass.		
213F	Double Deep Blue Perry Seed Co., Boston	Fair	Satisfactory
	ROSS BROS. CO., Worcester, Mass.		
596F	Jubilee Gem Ross Bros. Co., Worcester	Good	Satisfactory
	STERLING SEED CO., Minneapolis, Minn.		
464F	Double Mixed Colors J. J. Newberry Co., Attleboro	Good	Satisfactory Six colors
	THORNTON & CROUCH, Lawrence, Mass.		
567F	Centaurea Cyanus Thornton & Crouch, Lawrence	Good	Satisfactory
	BALSAM		
	THOMAS W. EMERSON CO., Boston, Mass.		
303F	Lady Slipper Thomas W. Emerson Co., Boston	Good	Satisfactory Seven colors

FLOWER SEED INSPECTION — Continued

Lab. No.	Variety and Source	Field Tests: Germination	Field Tests: Performance
	BALSAM—Concluded		
	FRASER'S, Wellesley, Mass.		
326F	Camellia-flowered—Finest Mixed	Good	Satisfactory
	Fraser's, Wellesley		Four colors
	FREDONIA SEED CO., Fredonia, N. Y.		
441F	Finest Mixed	Good	Satisfactory
	W. R. Armstrong Co., Attleboro		Six colors
	J. J. H. GREGORY & SON, Marblehead, Mass.		
501F	Improved Camellia flowered	Good	Satisfactory
	J. J. H. Gregory & Son, Marblehead		Five colors
	THOMAS J. GREY CO., Boston, Mass.		
227F	Double Rich Pink—Salmon King	Good	Satisfactory
	Thomas J. Grey Co., Boston		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
470F	Fine Double Mixed	Good	Satisfactory
	T. A. Whalen, Grocer, Lowell		Six colors
	STERLING SEED CO., Minneapolis, Minn.		
467F	Lady Slipper	Good	Satisfactory
	J. J. Newberry Co., Attleboro		Eight colors
	BLUE LACE FLOWER		
	CROSMAN SEED CO., INC., East Rochester, N.Y.		
429F	Queen Anne's	Good	Satisfactory
	S. S. Kresge Co., Quincy		
	THOMAS W. EMERSON CO., Boston, Mass.		
302F	Didiscus—Queen Anne's Lace Flower	Good	Satisfactory
	Thomas W. Emerson Co., Boston		
	CALENDULA		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
362F	Breck's Giant Orange	Good	Not satisfactory
	Joseph Breck & Sons, Corp., Boston		Included yellow and orange
	COBURN SEED & SUPPLY CO., Chelmsford, Mass.		
484F	Double Mixed	Good	Satisfactory
	Coburn Seed & Supply Co., Chelmsford		Five colors
	FERRY-MORSE SEED CO., Detroit, Mich.		
250F	Sunshine	Poor	Not satisfactory
	Union Florist, Boston		True to color
	FRASER'S, Wellesley, Mass.		
327F	Sunshine, Buttercup Yellow, Double	Good	Satisfactory
	Fraser's, Wellesley		True to color
	GOOD SEED CO., Fredonia, N. Y.		
817F	Choice Colors	Good	Satisfactory
	Bradstreet School, No. Andover		Two colors
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
359F	French Mixed Colors	Good	Satisfactory
	Bliss Hardware Co., Plymouth		Four colors
	A. G. PATCH CO., Boston, Mass.		
217F	Pot Marigold	None	
	A. G. Patch Co., Boston		
	ROSS BROS. CO., Worcester, Mass.		
598F	Orange King	Good	Satisfactory
	Ross Bros. Co., Worcester		True to color
	STERLING SEED CO., Minneapolis, Minn.		
461F	Double Mixed Colors	Good	Satisfactory
	J. J. Newberry Co., Attleboro		Five colors

FLOWER SEED INSPECTION — Continued

Lab. No.	Variety and Source	Field Tests: Germination	Field Tests: Performance
	CALIFORNIA POPPY		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
370F.	Eschscholtzia—Monarch Art Shades—Mixed Semi-Double. Joseph Breck & Sons, Corp., Boston	Good	Satisfactory Five colors
	NORTHRUP, KING & CO., Minneapolis, Minn.		
578F	Eschscholtzia Mixed—All Colors. F. W. Woolworth Co., Woburn	Good	Satisfactory Three colors
	STERLING SEED CO., Minneapolis, Minn.		
463F	All Colors Mixed. J. J. Newberry Co., Attleboro	Good	Satisfactory Two colors
	CALLIOPSIS		
	THE PAGE SEED CO., Greene, N. Y.		
615F	Coreopsis Mixed. John F. Robinson Co., Ware	Good	Satisfactory Three colors
	CANDYTUFT		
	BODGERS SEEDS, LTD., El Monte, Cal.		
657F	Giant Empress Rocket White. Monroe's Seed Market, Attleboro	Good	Satisfactory
	EMPIRE SEED CO., INC., Fredonia, N. Y.		
475F	Umbellata Mixed Colors. Chelmsford Square Garage, Chelmsford	Fair	Satisfactory Six colors
	FRASER'S, Wellesley, Mass.		
328F	Hyacinth-Flowered White. Fraser's, Wellesley	Good	Satisfactory
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.		
323F	Rainbow Mixture. Joseph Harris Co., Inc., Cambridge	Fair	Satisfactory Five colors
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
472F	White. T. A. Whalen, Grocer, Lowell	Poor	*
	PERRY SEED CO., Boston, Mass.		
214F	Giant White Perfection. Perry Seed Co., Boston	Good	Satisfactory
	CARNATION		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
358F	Extra Fine Mixed. Bliss Hardware Co., Plymouth	Poor	Not satisfactory Did not bloom
	THORNTON & CROUCH, Lawrence, Mass.		
566F	Mammoth Marquirite. Thornton & Crouch, Lawrence	Fair	Satisfactory
	CENTAUREA		
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.		
321F	Sweet Sultan, Mixed Colors. Joseph Harris Co., Inc., Cambridge	Good	Satisfactory Three colors
	CHRYSANTHEMUM		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
641F	Annual Varieties Mixed. Macy's Market, Attleboro	Poor	Not satisfactory Two colors
	THORNTON & CROUCH, Lawrence, Mass.		
569F	Mixed Double Annual. Thornton & Crouch, Lawrence	Good	Satisfactory Two colors

*Washed out by rain

FLOWER SEED INSPECTION — Continued

Lab. No.	Variety and Source	Field Tests: Germination	Field Tests: Performance
	COCKSCOMB		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
642F	Celesia, Dwarf Mixed	Good	Not satisfactory
	Coggins, Florist, Saugus		Averaged three feet high
	MANDEVILLE, KING & CO., Rochester, N. Y.		
454F	Shades of Red	Good	Satisfactory
	Wm. F. Flynn Co., Attleboro		
	THORNTON & CROUCH, Lawrence, Mass.		
565F	Prize Mixed	Good	Satisfactory
	Thornton & Crouch, Lawrence		
	COSMOS		
	EMPIRE SEED CO., INC., Fredonia, N. Y.		
476F	Early Mammoth Mixed Colors	Good	Satisfactory
	Chelmsford Square Garage, Chelmsford		
	GOOD SEED CO., Fredonia, N. Y.		
820F	Early Flowering Choice Colors	Good	Satisfactory
	Bradstreet School, No. Andover		
	THOMAS J. GREY CO., Boston, Mass.		
234F	Mammoth Sensation, Early Flowering, Pink	Good	Not satisfactory
	Thomas J. Grey Co., Boston		50% white flowers
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
562F	Giant Early Flowering Mixed Colors	Fair	Satisfactory
	The Smith Hardware Co., Lowell		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
194F	Early Flowering Mixed	None	
	Serafino Tarini, New Bedford		
	PERRY SEED CO., Boston, Mass.		
234F	Extra Early Mammoth Flowering Pink	Good	Satisfactory
	Perry Seed Co., Boston		
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
547F	Early Klondyke Orange Flare	Good	Satisfactory
	Martin W. Duggan Co., Newburyport		
	ROSS BROS. CO., Worcester, Mass.		
597F	Sensation Mixed	Good	Satisfactory
	Ross Bros. Co., Worcester		
	VAUGHAN'S SEED STORE, New York City		
639F	Orange Flare	Good	Satisfactory
	Coggins, Florist, Saugus		
	DAISY (AFRICAN)		
	MANDEVILLE, KING & CO., Rochester, N. Y.		
494F	African Blue-eyed Arctotis grandis	Poor	Not satisfactory
	Hutchinson Hardware Co., Lynn		One plant
			Died before blooming
	DIANTHUS		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
360F	Breck's Geisha Girl	Good	Satisfactory
	Joseph Breck & Sons, Corp., Boston		Seven colors
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
576F	Dianthus Finest Mixed	Good	Satisfactory
	Wakefield Supply Co., Wakefield		Ten colors
	NORTHRUP, KING & CO., Minneapolis, Minn.		
583F	Dianthus Double Mixed	Good	Satisfactory
	F. W. Woolworth Co., Woburn		Four colors

FLOWER SEED INSPECTION — Continued

Lab. No.	Variety and Source	Field Tests: Germination	Field Tests: Performance
	DIANTHUS—Concluded		
	JEROME B. RICE, JR., INC., Shushan, N. Y.		
592F	Double China Mixed Annual	Good	Satisfactory
	Herbert M. Lawrence Hardware Co., Lexington		Four colors
	THORNTON & CROUCH, Lawrence, Mass.		
570F	Dianthus	Good	Satisfactory
	Thornton & Crouch, Lawrence		Two colors
	FOUR O'CLOCK		
	FRASER'S, Wellesley, Mass.		
392F	Marvel of Peru (Mirabilis) Finest Colors	Good	Satisfactory
	Fraser's, Wellesley		Four colors
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
356F	Marvel of Peru—Mixed Colors	Fair	Satisfactory
	Bliss Hardware Co., Plymouth		Four colors
	JEROME B. RICE, JR., INC., Shushan, N. Y.		
591F	Annual	Good	Satisfactory
	Herbert M. Lawrence Hardware Co., Lexington		Four colors
	STERLING SEED CO., Minneapolis, Minn.		
459F	Marvel of Peru—Fine Mixed Colors	Good	Satisfactory
	J. J. Newberry Co., Attleboro		Four colors
	GAILLARDIA		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
369F	Breck's Superb Mixture	Fair	Satisfactory
	Joseph Breck & Sons, Corp., Boston		Three colors
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
574F	Single Mixed	Good	Satisfactory
	The Wakefield Supply Co., Wakefield		Three colors
	MANDEVILLE, KING & CO., Rochester, N. Y.		
493F	Indian Chief, Bronzy Red Single	Fair	Satisfactory
	Hutchinson Hardware Co., Lynn		
	NORTHRUP, KING & CO., Minneapolis, Minn.		
582F	Annual Mixed	Poor	Not satisfactory
	F. W. Woolworth Co., Woburn		
	GILIA		
	THOMAS W. EMERSON CO., Boston, Mass.		
312F	Capitata	Good	Satisfactory
	Thomas W. Emerson Co., Boston		
	HELICHRYSUM		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
575F	Everlasting Mixed	Poor	Not satisfactory
	The Wakefield Supply Co., Wakefield		Did not bloom
	NORTHRUP, KING & CO., Minneaplis, Minn.		
577F	Everlastings—Helichrysum monstrosum-mixed	Fair	Not satisfactory
	F. W. Woolworth Co., Woburn		Did not bloom
	STERLING SEED CO., Minneapolis, Minn.		
458F	Everlastings—Helichrysum monstrosum-mixed	Poor	Not satisfactory
	J. J. Newberry Co., Attleboro		Did not bloom
	LARKSPUR		
	CROSMAN SEED CO., INC. East Rochester, N.Y.		
427F	Rosamond—Stock Flowered—Deep Rose	Good	Satisfactory
	S. S. Kresge Co., Quincy		
	THOMAS W. EMERSON CO., Boston, Mass.		
307F	Rosamond	Fair	Satisfactory
	Thomas W. Emerson Co., Boston		

FLOWER SEED INSPECTION — Continued

Lab. No.	Variety and Source	Field Tests: Germination	Field Tests: Performance
	LARKSPUR—Concluded		
	FRASER'S, Wellesley, Mass.		
330F	Giant Imperial Finest Mixed	Good	Satisfactory
	Fraser's, Wellesley		Five colors
	GOOD SEED CO., INC., Fredonia, N. Y.		
821F	Tall Double Choice Colors	Poor	Not satisfactory
	Bradstreet School, No. Andover		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
474F	Finest Mixed	None	
	T. A. Whalen, Grocer, Lowell		
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
546F	Rosamond, Annual	Poor	Not satisfactory
	Martin W. Duggan Co., Newburyport		
	STERLING SEED CO., Minneapolis, Minn.		
465F	Mixed Colors	Good	Satisfactory
	J. J. Newberry Co., Attleboro		Four colors
	VAUGHAN'S SEED STORE, New York City		
638F	Vaughan's Double Annual Special Mixture	Poor	Not satisfactory
	Coggins, Florist, Saugus		Three colors
	LUPINE		
	FRASER'S, Wellesley, Mass.		
331F	Giant King—All Colors	Good	Satisfactory
	Fraser's, Wellesley		Two colors
	NORTHRUP, KING & CO., Minneapolis, Minn.		
579F	Annual Mixed	Fair	Satisfactory
	F. W. Woolworth Co., Woburn		Three colors
	STERLING SEED CO., Minneapolis, Minn.		
466F	Annual Mixed	Poor	Not satisfactory
	J. J. Newberry Co., Attleboro		One color
	THORNTON & CROUCH, Lawrence, Mass.		
571F	Mixed	Good	Not satisfactory
	Thornton & Crouch, Lawrence		Did not bloom
	MARIGOLD		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
363F	Signata Pumila Gold Dust	Poor	Not satisfactory
	Joseph Breck & Sons, Corp., Boston		
	COBURN SEED & SUPPLY CO., Chelmsford, Mass.		
483F	African Double Mixed	Good	Satisfactory
	Coburn Seed & Supply Co., Chelmsford		Three colors
	THOMAS W. EMERSON CO., Boston, Mass.		
304F	Guinea Gold	Good	Satisfactory
	Thomas W. Emerson Co., Boston		
	FERRY-MORSE SEED CO., Detroit, Mich.		
251F	Guinea Gold	Good	Satisfactory
	Union Florist, Boston		
	FRASER'S, Wellesley, Mass.		
332F	Crown of Gold	Good	Satisfactory
	Fraser's, Wellesley		
	THOMAS J. GREY CO., Boston, Mass.		
231F	Chrysanthemum Flowered	Fair	Satisfactory
	Thomas J. Grey Co., Boston		Three colors
	THE PAGE SEED CO., Greene, N. Y.		
347F	Tall African Mixed	Poor	Not satisfactory
	Plymouth Rock Hardware Co., Plymouth		Two colors
	A. G. PATCH CO., Boston, Mass.		
219F	African Mixed	None	
	A. G. Patch Co., Boston		

FLOWER SEED INSPECTION — Continued

Lab. No.	Variety and Source	Field Tests: Germination	Field Tests: Performance
	MARIGOLD—Concluded		
	PERRY SEED CO., Boston, Mass.		
215F	Carnation Flowered Guinea Gold... Perry Seed Co., Boston	Good	Satisfactory
	ROSS BROS. CO., Worcester, Mass.		
602F	Crown of Gold... Ross Bros. Co., Worcester	Good	Satisfactory
	STERLING SEED CO., Minneapolis, Minn.		
462F	African Tall Double Mixed... J. J. Newberry Co., Attleboro	Good	Satisfactory Three colors
	MIGNONETTE		
	BODGERS SEEDS, LTD., El Monte, Cal.		
656F	Sweet Machet... Monroe's Seed Market, Attleboro	Good	Satisfactory
	CROSMAN SEED CO., INC., East Rochester, N. Y.		
435F	Large Flowering Sweet... S. S. Kresge Co., Quincy	Fair	Satisfactory
	THOMAS W. EMERSON CO., Boston, Mass.		
305F	Machet Varieties Mixed... Thomas W. Emerson Co., Boston	Fair	Satisfactory
	EMPIRE SEED CO., INC., Fredonia, N. Y.		
479F	Sweet odorata Granditlora... Chelmsford Square Hardware Co., Chelmsford	Good	Satisfactory
	FRASER'S, Wellesley, Mass.		
333F	Special Mixture Large Flowering Sorts... Fraser's, Wellesley	Good	Satisfactory
	MOONFLOWER		
	NORTHRUP, KING & CO., Minneapolis, Minn.		
581F	White Seeded Ipomoea noctiflora... F. W. Woolworth Co., Woburn	Good	Satisfactory
	MORNING GLORY		
	BODGERS SEEDS, LTD., El Monte, Cal.		
672F	Early Heavenly Blue Improved... Monroe's Seed Market, Attleboro	Good	Satisfactory
	FERRY-MORSE SEED CO., Detroit, Mich.		
438F	Heavenly Blue... D. H. Lewis, Attleboro	Good	Satisfactory
	THOMAS J. GREY CO., Boston, Mass.		
223F	Scarlett O'Hara Ipomoea... Thomas J. Grey Co., Boston	Good	Satisfactory
	JEROME B. RICE, JR., INC., Shushan, N. Y.		
590F	Heavenly Blue Annual... Herbert M. Lawrence Hardware Co., Lexington	Fair	Satisfactory
	ROSS BROS. CO., Worcester, Mass.		
604F	Ipomoea Heavenly Blue (Rubra Coerulea)... Ross Bros. Co., Worcester	Good	Satisfactory
	NASTURTIUM		
	BARTLETT & DOW CO., Lowell, Mass.		
556F	Dwarf Mixed... Bartlett & Dow Co., Lowell	Good	Not satisfactory 90% of plants produced runners
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
540F	Dwarf Mixed... D. Cashman Hardware Co., Newburyport	Good	Satisfactory Five colors

FLOWER SEED INSPECTION — Continued

Lab. No.	Variety and Source	Field Tests: Germination	Field Tests: Performance
	NASTURTIUM—Concluded		
	THOMAS W. EMERSON CO., Boston, Mass.		
507F	Dwarf Mixed United Cooperative Society, Maynard	Good	Not satisfactory Few plants produced runners
	FERRY-MORSE SEED CO., Detroit, Mich.		
440F	Dwarf Mixed D. H. Lewis, Attleboro	Good	Satisfactory Four colors
	FREDONIA SEED CO., Fredonia, N. Y.		
245F	Golden Gleam Charles C. Stone Hardware Co., Dorchester	Good	Satisfactory
	GOOD SEED CO., Fredonia, N. Y.		
815F	Golden Gleam Bradstreet School, No. Andover	Good	Satisfactory
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
320F	Dwarf Mixed Faneuil Florist, Boston	Good	Not satisfactory 25% of plants produced runners
	MICHAEL LEONARD SEED CO., Chicago, Ill.		
520F	Dwarf Mixed W. E. Aubuchon Co., Maynard	Poor	Not satisfactory 15% of plants produced runners
	THE PAGE SEED CO., Greene, N. Y.		
275F	Dwarf Tom Thumb Choice Mixed J. H. Fairbanks Co., Bridgewater	Fair	Not satisfactory Few plants produced runners
	ROSS BROS. CO., Worcester, Mass.		
595F	New Double Gleam Hybrids—Semi-dwarf Sweet Scented Ross Bros. Co., Worcester	Good	Satisfactory Two colors
	F. H. WOODRUFF & SONS, Milford, Conn.		
623F	Golden Gleam J. B. Sibley & Son, Ware	Fair	Satisfactory
	PETUNIA		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
365F	Single Hamlet, Deep Violet Joseph Breck & Sons, Corp., Boston	Fair	Satisfactory Slight variation in color
366F	Single Breck's White Giant—Snow White Joseph Breck & Sons, Corp., Boston	Fair	Satisfactory
367F	Single Salmon Supreme Joseph Breck & Sons, Corp., Boston	Poor	Not satisfactory Color satisfactory
368F	Single Inflata, Silvery Pink Joseph Breck & Sons, Corp., Boston	Good	Satisfactory
	CROSMAN SEED CO., INC., East Rochester, N. Y.		
436F	Scarlet General Dodds S. S. Kresge Co., Quincy	Fair	Not satisfactory Not true to color
	FRASER'S, Wellesley, Mass.		
334F	Snow Queen—Large-Flowered White Fraser's, Wellesley	Good	Not satisfactory Six colors
	FREDONIA SEED CO., Fredonia, N. Y.		
244F	Finest Mixed Charles F. Stone Hardware Co., Dorchester	Good	Satisfactory Eight colors
	GOOD SEED CO., Fredonia, N. Y.		
822F	Hybrida Choice Colors Bradstreet School, No. Andover	Poor	Not satisfactory Five colors
	J. J. H. GREGORY & SON, Marblehead, Mass.		
498F	Fine Mixed J. J. H. Gregory & Son, Marblehead	Good	Satisfactory Seven colors

FLOWER SEED INSPECTION — Continued

Lab. No.	Variety and Source	Field Tests: Germination	Field Tests: Performance
	PETUNIA—Concluded		
	THOMAS J. GREY CO., Boston, Mass.		
230F	Miniature Rose Crepe de Chine Thomas J. Grey Co., Boston	Good	Satisfactory
	ROSS BROS. CO., Worcester, Mass.		
601F	Rose of Heaven Ross Bros. Co., Worcester	Good	Not satisfactory Four colors
	PHLOX		
	CROSMAN SEED CO., INC., East Rochester, N. Y.		
430F	Drummondi Mixed Colors S. S. Kresge Co., Quincy	Good	Satisfactory Four colors
	THOMAS W. EMERSON CO., Boston, Mass.		
306F	Drummondi Thomas W. Emerson Co., Boston	Good	Satisfactory Seven colors
	EMPIRE SEED CO., Fredonia, N. Y.		
477F	Drummondi Mixed Colors Chelmsford Square Hardware Co., Chelmsford	None	
	THOMAS J. GREY CO., Boston, Mass.		
232F	Drummondi Gigantea Salmon Glory Thomas J. Grey Co., Boston	Poor	Not satisfactory Color satisfactory
	MANDEVILLE, KING & CO., Rochester, N. Y.		
453F	Drummondi—All Colors Wm. F. Flynn Hardware Co., Attleboro	Fair	Satisfactory Eight colors
	POPPY		
	BODGERS SEEDS, LTD., El Monte, Cal.		
655F	Finest Mixed Monroe's Seed Market, Attleboro	Good	Satisfactory
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
534F	Shirley Mixed Joseph Breck & Sons, Corp., Boston	Good	Satisfactory
	EMPIRE SEED CO., Fredonia, N. Y.		
480F	Single and Double Mixed Colors Chelmsford Square Hardware Co., Chelmsford	Good	Satisfactory
	GOOD SEED CO., Fredonia, N. Y.		
823F	Carnation Flowered, Double Choice Colors Bradstreet School, No. Andover	Good	Satisfactory Some single flowered
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
564F	Shirley—Mixed Colors The Smith Hardware Co., Lowell	Good	Satisfactory
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
471F	Finest Mixed T. A. Whalen, Grocer, Lowell	Poor	Not satisfactory Only three plants
	MANDEVILLE, KING & CO., Rochester, N. Y.		
490F	Flanders Field Hutchinson Hardware Co., Lynn	Good	Satisfactory
	PORTULACA		
	BODGERS SEEDS, LTD., El Monte, Cal.		
668F	Single Mixed Monroe's Seed Market, Attleboro	Good	Satisfactory Seven colors
	FERRY-MORSE SEED CO., Detroit, Mich.		
437F	Single Fine Mixed D. H. Lewis Co., Attleboro	Good	Satisfactory Eleven colors
	FRASER'S, Wellesley, Mass.		
335F	Single Choice Mixed, Large Flowered Types Fraser's, Wellesley	Good	Satisfactory Seven colors
	THE PAGE SEED CO., Greene, N. Y.		
348F	Finest Single Mixed Plymouth Rock Hardware Co., Plymouth	Good	Satisfactory Ten colors

FLOWER SEED INSPECTION — Continued

Lab. No.	Variety and Source	Field Tests: Germination	Field Tests: Performance
	PORTULACA—Concluded		
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
545F	Double and Single Mixed—Sun Plant	Poor	Not satisfactory
	Martin W. Duggan Co., Newburyport		Colors satisfactory
	ROSS BROS. CO., Worcester, Mass.		
600F	Double Mixed	Fair	Satisfactory
	Ross Bros. Co., Worcester		Five colors
	RUDBECKIA		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
361F	Cone Flower—My Joy—Deep Orange	Good	Satisfactory
	Joseph Breck & Sons, Corp., Boston		
	SALPIGLOSSIS		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
533F	Mixed	Good	Satisfactory
	D. Cashman Hardware Co., Newburyport		Three colors
	THOMAS W. EMERSON CO., Boston, Mass.		
301F	Gloxiniaflora Mixed	Good	Satisfactory
	Thomas W. Emerson Co., Boston		Six colors
	THOMAS J. GREY CO., Boston, Mass.		
229F	Improved Large Flowering Light Blue and Gold	Good	Not satisfactory
	Thomas J. Grey Co., Boston		Not true to color
	MANDEVILLE, KING & CO., Rochester, N. Y.		
451F	Velvet Flower—All Colors	Good	Satisfactory
	Wm. F. Flynn Hardware Co., Attleboro		Seven colors
	NORTHRUP, KING & CO., Minneapolis, Minn.		
587F	Painted Tongue, Large Flowering Mixed	Good	Satisfactory
	F. W. Woolworth Co., Quincy		Four colors
	VAUGHAN'S SEED STORE, New York City		
637F	Vaughan's Special Mixture	Good	Satisfactory
	Coggins, Florist, Saugus		Five colors
	SALVIA		
	CROSMAN SEED CO., INC., East Rochester, N. Y.		
431F	Bonfire	Poor	Not satisfactory
	S. S. Kresge Co., Quincy		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
335F	Splendens, Flowering Sage	Poor	Not satisfactory
	Bliss Hardware Co., Plymouth		
	MANDEVILLE, KING & CO., Rochester, N. Y.		
452F	Scarlet Sage	Fair	Satisfactory
	Wm. F. Flynn Hardware Co., Attleboro		
	NORTHRUP, KING & CO., Minneapolis, Minn.		
586F	Scarlet Sage	Poor	Not satisfactory
	F. W. Woolworth Co., Woburn		
	SCABIOSA		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
532F	Mixed	Fair	Not satisfactory
	D. Cashman Hardware Co., Newburyport		Two colors
	THOMAS W. EMERSON CO., Boston, Mass.		
311F	Double Mixed Mourning Bride	Good	Satisfactory
	Thomas W. Emerson Co., Boston		Four colors
	THOMAS J. GREY CO., Boston, Mass.		
226F	Improved Large Flowering Imperial Giants	Fair	Satisfactory
	Thomas J. Grey Co., Boston		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
573F	Mourning Bride Mixed	Good	Satisfactory
	Wakefield Supply Co., Wakefield		Four colors

FLOWER SEED INSPECTION — Continued

Lab. No.	Variety and Source	Field Tests: Germination	Field Tests: Performance
	SCABIOSA—Concluded		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
469F	Mourning Bride	Poor	Not satisfactory
	T. A. Whalen, Grocer, Lowell		Three colors
	JEROME B. RICE, JR., INC., Shushan, N. Y.		
594F	Mourning Bride, Mixed Annual	Poor	Not satisfactory
	Herbert M. Lawrence Hardware Co., Lexington		Did not bloom
	SNAPDRAGON		
	THOMAS W. EMERSON CO., Boston, Mass.		
309F	Rust Resistant Mixed	Good	Satisfactory
	Thomas W. Emerson Co., Boston		Five colors
	THOMAS J. GREY CO., Boston, Mass.		
233F	Rust Proof Maximum Copper Shades	Fair	Satisfactory
	Thomas J. Grey Co., Boston		
	MANDEVILLE, KING & CO., Rochester, N. Y.		
491F	Rust Proof—All Colors	Poor	Not satisfactory
	Hutchinson Hardware Co., Lynn		Three colors
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
548F	Antirrhinum Finest Mixed	Good	Satisfactory
	Martin W. Duggan Co., Newburyport		Five colors
	JEROME B. RICE, JR., INC., Shushan, N. Y.		
593F	Special Mixed Annuals	Fair	Not satisfactory
	Herbert M. Lawrence Hardware Co., Lexington		Only one plant bloomed
	SNOW-ON-THE MOUNTAIN		
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.		
324F	Euphorbia variegata	Good	Satisfactory
	Joseph Harris Co., Inc., Cambridge		
	SPIDER PLANT		
	JOSEPH BRECK & SONS, CORP., Boston, Mass.		
364F	Cleome White Feather, Pure White	Good	Satisfactory
	Joseph Breck & Sons, Corp., Boston		
	STOCK		
	JOSEPH HARRIS CO., INC., Coldwater, N. Y.		
322F	Harris' Sure-to-Bloom Variety Mixture	Good	Satisfactory
	Joseph Harris Co., Inc., Cambridge		Four colors
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
473F	German Dwarf, Mixed	Poor	Not satisfactory
	T. A. Whalen, Grocer, Lowell		Two colors
	NORTHRUP, KING & CO., Minneapolis, Minn.		
585F	Ten Weeks Mixed, Large Flowering All Colors	Fair	Satisfactory
	F. W. Woolworth Co., Woburn		Six colors
	THORNTON & CROUCH, Lawrence, Mass.		
572F	Ten Weeks Mixed, Gilliflower	Good	Satisfactory
	Thornton & Crouch, Lawrence		Four colors
	SUNFLOWER		
	THOMAS W. EMERSON CO., Boston, Mass.		
508F	Mammoth Russian	Good	Satisfactory
	United Cooperative Society, Maynard		
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
513F	Mammoth Russian	Good	Satisfactory
	Parker Hardware Co., Maynard		

FLOWER SEED INSPECTION — Continued

Lab. No.	Variety and Source	Field Tests: Germination	Field Tests: Performance
	VERBENA		
	FERRY-MORSE SEED CO., Detroit, Mich.		
458F	Fine Mixed	Good	Satisfactory
	R. W. Messer Hardware Co., Billerica		Four colors
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
357F	Finest Mixed	Poor	Not satisfactory
	Bliss Hardware Co., Plymouth		Colors satisfactory, six
	MANDEVILLE, KING & CO., Rochester, N. Y.		
489F	White	Fair	Satisfactory
	Hutchinson Hardware Co., Lynn		
	NORTHRUP, KING & CO., Minneapolis, Minn.		
584F	Mammoth Flowering Pink Shades	Good	Not satisfactory
	F. W. Woolworth Co., Woburn		Included white and red
	JEROME B. RICE, JR., INC., Shushan, N. Y.		
588F	Choice Mixed Annual	Good	Satisfactory
	Herbert M. Lawrence Hardware Co., Lexington		Eight colors
	ROSS BROS. CO., Worcester, Mass.		
603F	Mammoth Mixed	Good	Satisfactory
	Ross Bros. Co., Worcester		Eight colors
	WALLFLOWER		
	MANDEVILLE, KING & CO., Rochester, N. Y.		
493F	Single—All Colors	Good	Satisfactory
	Hutchinson Hardware Co., Lynn, Mass.		Three colors
	ZINNIA		
	COBURN SEED & SUPPLY CO., Chelmsford, Mass.		
481F	Giant Dahlia Mixed	Good	Satisfactory
	Coburn Seed & Supply Co., Chelmsford		Seven colors
	DEERINGTON ZINNIA GARDENS, Bargersville, Ind.		
428F	Pride of Indiana, Dahlia Flowered, Deerington Special	Good	Satisfactory
	S. S. Kresge Co., Quincy		
	THOMAS W. EMERSON CO., Boston, Mass.		
308F	California Giants	Good	Satisfactory
	Thomas W. Emerson Co., Boston		Nine colors
	FERRY-MORSE SEED CO., Detroit, Mich.		
439F	Dahlia Flowered Mixed Giants	Good	Satisfactory
	D. H. Lewis Co., Attleboro		Six colors
	FRASER'S, Wellesley, Mass.		
336F	Illumination, Dahlia Flowered, Lovely Bright Rose	Good	Satisfactory
	Fraser's, Wellesley		
	FREDONIA SEED CO., Fredonia, N. Y.		
444F	Giants Finest Mixed	Fair	Satisfactory
	W. R. Armstrong Co., Attleboro		Six colors
	GOOD SEED CO., Fredonia, N. Y.		
824F	Mammoth Flowered, Choice Colors	Good	Satisfactory
	Bradstreet School, No. Andover		Six colors
	J. J. H. GREGORY & SON, Marblehead, Mass.		
502F	Fantasy	Good	Satisfactory
	J. J. H. Gregory & Son, Marblehead		Nine colors
	THOMAS J. GREY CO., Boston, Mass.		
224F	Double, Will Rogers, Immense Glowing Scarlet	Good	Satisfactory
	Thomas J. Grey Co., Boston		Spectrum Red (Ridgeway)
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
193F	Double Mixed	Good	Satisfactory
	Serfino Tarini, New Bedford		Ten colors

FLOWER SEED INSPECTION — Concluded

Lab. No.	Variety and Source	Field Tests: Germination	Field Tests: Performance
	ZINNIA—Concluded		
	THE PAGE SEED CO., Greene, N. Y.		
273F	Lilliput Mixed Colors J. H. Fairbanks Co., Bridgewater	Good	Satisfactory Nine colors
274F	Double Choice Mixed J. H. Fairbanks Co., Bridgewater	Good	Satisfactory Eight colors
	A. G. PATCH CO., Boston, Mass.		
218F	Dahlia Flowering Orange A. G. Patch Co., Boston	Good	Not satisfactory Twelve colors
	PERRY SEED CO., Boston, Mass.		
216F	Scarlet Flame—New Dahlia Flowered Perry Seed Co., Boston	Good	Satisfactory
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
549F	Fantasy Fine Mixed Martin W. Duggan Co., Newburyport	Good	Satisfactory Eight colors
	ROSS BROS. CO., Worcester, Mass.		
599F	Dahlia Flowered, Gold Medal—Mixed Colors Ross Bros. Co., Worcester	Good	Satisfactory Eight colors

Variety Variation Studies With Seed Corn

Conducted in Cooperation with the Department of Agronomy,

William G. Colby, Research Professor

In the spring of 1939 seventy-two samples of corn, collected from different seed sources, were planted in single row plots and grown to maturity. Almost all of the important open-pollinated corn varieties grown in Massachusetts were represented in the collection. In a few instances only one sample of a variety was taken, but in most cases the same variety was collected from a number of different sources. The object of the study was to determine the range of variation between lots of seed sold under the same varietal name but originating from different seed sources.

Observations were made on the general plant and ear characteristics, the tasseling date and the ripening date of each sample. A fair degree of uniformity was found between different lots of the same variety with respect to such varietal characteristics as ear shape and kernel shape and color, but wide variations were found in the height of plant (see illustration on page 104) and the number of days required for ripening. In one instance seed of a variety from one source matured three full weeks ahead of seed sold as the same variety from another source. In several cases there were differences of ten days in maturity between different seed sources.

The results of this study clearly indicate the unreliability of variety names in corn varieties. It should be emphasized, however, that this condition is not the fault of the seedsmen but is rather an inevitable result associated with the seed production of an open-pollinated species. The relative ease by which the characteristics of an open-pollinated variety may be changed by different growers consistently selecting for different strain types, or by carrying on selection under different climatic environments, has resulted in the isolation of many strains within all important varieties. The corn grower then should bear these facts in mind when buying seed of an open-pollinated corn variety. Unless he knows just how a particular dealer's strain of a variety will perform under his local growing conditions, he is likely to be disappointed with the results from the use of commercial seed.

This situation will be greatly improved with the increased use of hybrid corn. The pollination is controlled in this case and consistent. Uniform performance can be expected from any given hybrid provided it comes from a certified seed source.

In the following table laboratory numbers to which the letter "F" has been added indicate that the samples were taken from seedsmens' stock by a State Inspector and were tested for viability in the Seed Laboratory. The source of the seed and results of laboratory tests are given on Pages 15 to 23.

FIELD TESTS OF CORN VARIETIES

Lab. No.	Sales Name	Number of Days to Tasseling	Number of Days to Ripening
	PLANTED MAY 24		
607 F	Early Canada Flint	60	100
93 F	Early Yellow Canada Flint	65	104
695 F	Early Canada Flint	68	106
314 F	Early Canada Flint	69	112
95 F	Mondamin Flint	64	103
608 F	Smoky Dent	65	103
97 F	Smoky Dent	67	105
689 F	Hybrid Canada Leaming	67	103
316 F	Cornell 11	71	108
6398 PG	Cornell 29-3	68	106
174 F	Longfellow N. Y. State Flint	69	112
541 F	Longfellow Flint	69	114
697 F	Longfellow Flint	69	115
606 F	Longfellow Flint	70	116
5623 PG	West Branch Sweepstakes	70	114
557 F	West Branch Sweepstakes	70	114
315 F	West Branch Sweepstakes	70	114
650 F	West Branch Sweepstakes	70	114
688 F	West Branch Sweepstakes	70	114
524 F	West Branch Sweepstakes	73	120
610 F	West Branch Sweepstakes	75	122
687 F	West Branch Sweepstakes	74	125
699 F	Page's Golden Sweepstakes	70	114
555 F	Mammoth Yellow Sweepstakes	71	116
605 F	Yellow Sweepstakes	76	122
775 F	Golden Sweepstakes	75	123
645 F	Broad Yellow Sweepstakes	76	124
297 F	Yellow Sweepstakes	76	124
258 F	Reist's Sweepstakes	74	121
173 F	Sweepstakes	74	121
56 F	Sweepstakes	75	122
96 F	Breck's Sweepstakes	78	133
682 F	Improved Leaming	63	100
651 F	Improved Leaming	65	103
774 F	Improved Leaming	68	113
298 F	Improved Leaming	69	113
609 F	Improved Leaming	75	113
543 F	Improved Leaming	70	115
691 F	Improved Leaming	75	120
525 F	Improved Leaming	75	120
698 F	Page's Improved Leaming	79	138
57 F	Leaming	70	114
553 F	Leaming	69	115
172 F	Leaming	75	121
558 F	Leaming	75	123
626 F	Woodruff's Selected Beauty	75	120
6397 PG	Burt Leaming	68	114
680 F	Lancaster Sure Crop	68	113
730 F	Lancaster Sure Crop	76	121
690 F	Lancaster Sure Crop	76	121
652 F	Early Eureka	68	106
554 F	Early Eureka	77	121
486 F	Excelsior Ensilage	69	113
686 F	Excelsior Ensilage	69	113

FIELD TESTS OF CORN VARIETIES—Concluded

Lab. No.	Sales Name	Number of Days to Tasseling	Number of Days to Ripening
728 F	Southern White	68	113
559 F	Eureka Ensilage	79	134
94 F	Eureka Ensilage	73	136
6399 PG	Eureka Ensilage	82	*
696 F	Virginia Eureka	82	*
	PLANTED JUNE 2		
874 F	Early Canada Flint	70	104
848 F	Minnesota 13	65	100
876 F	Minnesota 13	67	110
869 F	Field Corn 83-108	74	120
803 F	Gold Nugget Flint	74	120
836 F	Improved Leaming	76	120
877 F	Improved Leaming	77	120
870 F	Improved Leaming	77	121
804 F	Improved Leaming	77	121
875 F	Lancaster Sure Crop	77	132
837 F	Yellow Sweepstakes	80	134
805 F	West Branch Sweepstakes	80	134
842 F	West Branch Sweepstakes	80	136

*Failed to mature before frost.

PUBLICATION OF THIS DOCUMENT APPROVED BY COMMISSION ON ADMINISTRATION AND FINANCE

2500-2-40. D-816.

West Branch Sweepstakes Corn

Seed from —

(1) Eastern States Farmers' Exchange
(2) Wrentham Hospital
(3) Ross Bros. Co.
(4) Joseph Breck & Sons, Corp.

MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

CONTROL SERIES BULLETIN NO. 103 JUNE, 1940

Twentieth Annual Report on Eradication of Pullorum Disease in Massachusetts

By the Poultry Disease Control Laboratory

This bulletin reports results of pullorum disease testing for the 1939-40 season. A marked increase in the number of tests was observed for the season. Increases in the number of tested turkey flocks and turkeys were also noted. In six of the twelve counties, the tested chicken flocks revealed no reactors. This fact shows that poultrymen in Massachusetts are making definite progress in eradicating the disease and establishing and maintaining pullorum-free flocks.

MASSACHUSETTS STATE COLLEGE
AMHERST, MASS.

TWENTIETH ANNUAL REPORT OF PULLORUM DISEASE ERADICATION IN MASSACHUSETTS
1939—1940

By the Poultry Disease Control Laboratory†

Introduction

Twenty years ago, pullorum disease was a serious menace to the poultry industry in Massachusetts. Since that time effective testing has eliminated the infection from the majority of breeding flocks. This disease control and eradication service has greatly aided the Massachusetts poultry industry to become established on a profitable and growing basis.

Summary of Service Rendered

Applications received		384
Applications cancelled		18
Flocks tested		366
Chicken flocks	340	
Chicken and turkey flocks	6	
Turkey flocks	20	
Number of tests		689,377
Chickens:		
Routine	649,717	
Experimental	26,894*	
Fowl other than chickens:		
Routine	7,079	
Experimental	5,687**	
Owners receiving necropsy service		40
Necropsies of reacting birds		76

*Includes 3,312 fowl typhoid tests and 77 paratyphoid tests.
**Includes 5,402 paratyphoid tests.

Distribution of Tests and Reactors

Table 1 gives the number of tests and reactors for each breed and each county. A total of 673,222 samples was tested in 12 counties. Norfolk, Middlesex, and Worcester counties led in the number of tests. The average percentage of positive tests was 0.51. In six counties no reactors were found among the tested birds. Only one county (Norfolk) had more than 1 percent infection. All reactors were confined to five breeds. Among 26,355 White Plymouth Rock tests, only 4 reactors were detected. Among the New Hampshires and White Leghorns, the reactors were confined to one and two counties, respectively.

The following breeds and varieties were tested: Bantam, Barnevelder, Barred Plymouth Rock, Back Australorp, Brahmas, Columbian Plymouth Rock, Cornish Game, Guinea fowl, Jersey Black Giant, Jersey White

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†Poultry Disease Control Laboratory Staff: H. Van Roekel, Chief of Laboratory; K. L. Bullis, Assistant Veterinary Pathologist; O. S. Flint, Assistant Research Professor; Miriam K. Clarke, Research Assistant; Felicia Jewett, Laboratory Assistant. Appreciation is extended to Dr. J. B. Lentz, Head of the Department of Veterinary Science, for the administrative assistance given to the testing work.

TABLE I. DISTRIBUTION OF TESTS AND REACTORS BY COUNTIES AND BY BREEDS

Breeds		Barnstable	Berkshire	Bristol	Dukes	Essex	Franklin	Hampden	Hampshire	Middlesex	Norfolk	Plymouth	Worcester	Totals	Percent Positive Tests
Rhode Island Reds	Total tests	2,363	3,317	56,479	....	35,143	33,014	13,726	24,274	81,343	169,332	32,994	77,036	529,021	
	Positive tests	0	0	7	....	0	20	0	0	160	3,015	10	0	3,212	0.61
Barred Plymouth Rocks	Total tests	682	4,228	12,436	318	3,678	13,806	1,274	1,479	14,535	11,356	14,229	12,332	90,353	
	Positive tests	0	9	55	0	0	0	0	0	0	76	17	0	157	0.17
White Plymouth Rocks	Total tests	....	593	4,130	....	1,621	....	526	199	6,637	1,581	10,609	459	26,355	
	Positive tests	....	0	4	....	0	....	0	0	0	0	0	0	4	0.02
White Leghorns	Total tests	....	4,298	1,689	....	3,971	78	....	44	....	2,069	....	....	12,149	
	Positive tests	....	0	0	....	0	9	....	0	....	6	....	....	15	0.12
New Hampshires	Total tests	....	1,032	....	....	....	3,929	136	205	2,071	....	2,222	1,386	10,981	
	Positive tests	....	37	....	....	....	0	0	0	0	....	0	0	37	0.34
Miscellaneous	Total tests	308	....	291	220	472	116	354	32	539	1,503	84	444	4,363	
	Positive tests	0	....	0	0	0	0	0	0	0	0	0	0	0	0.00
Total Tests		3,353	13,468	75,025	538	44,885	50,943	16,016	26,233	105,125	185,841	60,138	91,657	673,222	
Positive Tests	Number	0	46	66	0	0	29	0	0	160	3,097	27	0	3,425	
	Percent	0.00	0.34	0.09	0.00	0.00	0.06	0.00	0.00	0.15	1.67	0.04	0.00		0.51

Giant, New Hampshires, Rhode Island Red, White American, White Leghorn, White Plymouth Rock, White Wyandotte and Cross-breeds.

Of the total number of samples tested, 611,099 (78,033 hens and 533,066 pullets) were from females and 62,123 from males. Of these 0.50 and 0.61 percent respectively were positive. It is of interest to note that the percentage of reactors was higher among the males. This may be explained in part by the fact that the bulk of the reactors were in one large flock in which the percentage of male reactors was higher than female reactors.

Annual Testing of Flocks

Annual testing of all birds on the premises is essential in determining the true pullorum status of a flock. Massachusetts poultrymen realize the soundness of this measure in establishing and maintaining a pullorum-clean flock. In view of the many possible avenues through which pullorum infection may enter a flock, poultrymen cannot afford to jeopardize the standing of their flocks through intermittent and partial flock testing.

Table 2 shows the progress that has been made in the establishment and maintenance of pullorum-free flocks.

The number of flocks tested for the first time was 66, which is a slight decrease from the previous season. In this group, 44,537 birds were tested and 0.11 percent reactors found. The infection was confined to five flocks and in all but one, less than 400 birds were tested. In three of the smaller flocks, the percentage of infection ranged from 6.91 to 27.08.

TABLE 2. ANNUAL TESTING VERSUS SINGLE AND INTERMITTENT TESTING

Classification	Flocks	Birds	Total Tests	Positive Tests		Negative Flocks		Positive Flocks	
				Number	Percent	100% Tested	Partially Tested	100% Tested	Partially Tested
Tested for the first time ..	66	44,537	44,537	47	0.11	46	15	0	5
Intermittent testing	14	16,740	17,604	19	0.11	5	7	0	2
Two consecutive years	54	57,992	77,641	197	0.25	41	10	3	0
Three or more consecutive years	212	453,731	533,440	3,162	0.59	188	20	3	1
Totals	346	573,000	673,222	3,425	0.51	280	52	6	8

These figures clearly suggest that some flock owners might well consider a carefully planned eradication program before expending money for the testing of a heavily infected flock. Short-interval retesting is expensive, and unless the value of the stock warrants such expenditure, retesting is not recommended. Therefore, if an owner knows that infection exists in his flock, he should determine which plan to follow—a retesting program or the replacement of the infected flock by stock from pullorum-clean sources.

It was also noted that, in a rather high percentage of the flocks tested for the first time, only part of the birds was tested.

There were 14 flocks in the intermittent testing group, in 9 of which only part of the birds was tested. Intermittent and partial flock testing is conducive to permitting infection to become established in a flock.

Flocks tested for two consecutive years show that flock owners in this group, on the whole, have a better knowledge of disease eradication and prevention than owners who test for the first time or intermittently.

In the group tested for three or more consecutive years, which is the largest of the four groups, the outstanding feature is the fact that it is the highest of all the groups in percentage of infection. However, 3,079 reactors were found in two large flocks, leaving only 83 reactors (.02 percent) detected among 389,755 birds in 210 flocks. Three of the infected flocks in this group have had infection for two or more consecutive years.

It is very encouraging to note that 188 flock owners in this group had all their birds tested and no reactors were found. However, there is still considerable opportunity for improvement, since 66 of all the flocks tested were either infected or only partially tested, or both. As long as flocks remain in these classifications, they cannot be considered eligible for official recognition by the Massachusetts Department of Agriculture. In all, 280 flocks representing 460,045 birds were 100 percent tested and nonreacting. Among these flocks the majority have been tested and found negative for three or more consecutive years. Such flocks are safest for breeding from the standpoint of pullorum-disease control and eradication.

Appearance of Infection in Flocks Previously Negative

During the past year, infection was detected in six flocks which had been negative for one or more years. In all but one flock, the amount of infection did not exceed 1 percent, as is shown in Table 3. The source of infection could not be definitely accounted for in all instances. From the information at hand, it appears that the owners of these flocks may not fully appreciate the possible avenues through which pullorum disease may be introduced.

Poultrymen in general could greatly strengthen their preventive measures by prohibiting the traffic of used equipment, whatever it may be, onto the premises. Furthermore, poultry dealers, agents, feed dealers, and visitors should not be permitted to enter the poultry houses and ranges. Of the possible vectors that may play a role in disseminating pullorum disease, the infected bird, infective egg, contaminated soil, equipment, feed, and litter appear the most likely sources for infection. If poultrymen can set up effective barriers against such potentially dangerous vectors, few if any breaks will occur. Free flying birds may be a possible vector, but this appears rather remote.

Reinfection of a flock is costly to the owner. It usually disturbs his trade and may involve considerable expense in eliminating the infection. Therefore, every poultry breeder should exercise all precautions possible to prevent the introduction of infection. It must be remembered that testing does not prevent birds from becoming infected. Its sole purpose is to detect infected birds so that they can be eliminated from the flock. A negative flock has no assurance of remaining free of the disease if the owner does not exercise proper precautionary measures.

TABLE 3. APPEARANCE OF INFECTION IN FLOCKS PREVIOUSLY NEGATIVE

Flock	Number of Years Negative	1939-40 Season			Explanation for Infection
		Flock Total	Number Tested	Positive Tests Percent	
1	1	938	938	0.11	Unknown
2	2	1,317	1,317	0.30	Unknown
3	2	2,683	2,683	0.67	Inadequate preventive measures
		2,665	595*	0.00	
4	3	5,105	123	2.44	Custom hatching
		5,100	107*	0.00	
		5,100	99*	0.00	
		5,098	5,090	0.00	
5	1	1,006	1,006	0.50	Unknown
		872	872*	0.46	
6	4	2,242	2,242	0.76	Unknown
		1,954	1,953	0.00	

*Represents retests.

Necropsy of Reacting Birds

During the past year, 40 flock owners submitted 76 reacting birds (66 chickens and 10 turkeys) to the laboratory for necropsy.

The causative organism of pullorum disease was isolated from 7 of the 66 chickens. In all but one case, the infected birds gave strong reactions. The single case was a male which gave a low reaction with the tube test and a negative reaction with the whole-blood test. The majority of these reacting birds were classified in the doubtful or non-specific group. What causes these reactions is not known and apparently it is not a local problem.

Since such reactions are frequently indistinguishable from reactions obtained in infected birds, one cannot regard such birds as negative unless further examinations are carried out and reveal the absence of infection. Neither should a flock be condemned as infected if only doubtful reactors are detected that do not show conclusive evidence of infection. Flock owners have been very cooperative in complying with requests from the laboratory concerning this phase of the testing work. It is the policy of the laboratory to extend every possible service to the flock owner in order to arrive at an accurate flock diagnosis.

The supplemental necropsy service of reacting birds during the past year definitely identified fowl typhoid infection. The fowl typhoid carriers were detected in the routine testing with pullorum antigen. Through the necropsy service, it was possible to determine that the reactors were not infected with pullorum disease but with fowl typhoid. The fowl typhoid infection was eliminated from the flock by retesting at 2 to 4 week intervals.

Non-reacting and Positive Flocks Classified by Counties

The distribution of non-reacting and positive flocks among the 12 counties is of interest. Table 4 shows that all 12 counties contained non-reacting flocks. Worcester and Middlesex counties led in the number of non-reacting flocks and birds. All flocks tested in 7 counties (Barnstable, Dukes, Essex, Hampden, Hampshire, Plymouth, and Worcester) were classified as non-reacting at the close of the season.

During the past year, 332 non-reacting flocks (including partially tested), representing 497,356 birds, were identified in the 12 counties. This number of birds in non-reacting flocks represents an increase over the previous season, which means that Massachusetts is making definite progress in establishing a larger nucleus of breeding birds which are free from pullorum disease.

The 14 positive flocks were confined to 5 counties. These positive flocks have been discussed elsewhere in this bulletin. Suffice it to say here that it is hoped that all possible agencies in the counties where the positive flocks exist will aid the flock owners in eliminating the infection from their premises. In the light of the possible ways in which pullorum disease can be eradicated, no flock owner who is willing and conscientious should regard the task of establishing a clean flock as impossible.

TABLE 4. NON-REACTING AND POSITIVE FLOCKS CLASSIFIED BY COUNTIES

County	100% Tested		Partially Tested		Total	
	Flocks	Birds	Flocks	Birds	Flocks	Birds
Non-Reacting Flocks						
Barnstable	2	3,353	—	—	2	3,353
Berkshire	7	8,859	1	134	8	8,993
Bristol	42	66,841	4	3,398	46	70,239
Dukes	1	538	—	—	1	538
Essex	22	38,271	6	6,614	28	44,885
Franklin	32	45,641	2	2,722	34	48,363
Hampden	18	15,988	1	28	19	16,016
Hampshire	21	24,148	5	2,085	26	26,233
Middlesex	46	77,981	9	5,946	55	83,927
Norfolk	20	39,531	9	4,950	29	44,481
Plymouth	25	51,614	7	7,057	32	58,671
Worcester	44	87,280	8	4,377	52	91,657
Totals	280	460,045	52	37,311	332	497,356
Positive Flocks						
Berkshire	1	931	1	3,544	2	4,475
Bristol	2	2,574	1	1,142	3	3,716
Franklin	—	—	2	409	2	409
Middlesex	1	938	2	236	3	1,174
Norfolk	2	60,012	2	5,858	4	65,870
Totals	6	64,458	8	11,186	14	75,644

Comparison of 1938-39 and 1939-40 Testing

Table 5 gives a comparison of the 1938-39 and 1939-40 testing results. Two counties (Bristol and Middlesex) showed a considerable increase in tested birds over the previous season, while two counties (Hampden and Hampshire) showed a noticeable decrease. In all but two counties (Franklin and Norfolk), the percentage of infection was less than in the previous season.

For the state as a whole, increases were observed in tested birds (1,935), tests (58,017), and non-reacting flocks (5). The average percentage of infection increased slightly from 0.34 to 0.51.

TABLE 5. COMPARISON OF 1938-39 AND 1939-40 TESTING

County	Flocks	Birds	Tests	Positive Tests Percent	Non-Reacting Flocks
1938-39 Season					
Barnstable	4	4,643	4,643	0.37	3
Berkshire	15	12,012	12,924	1.73	9
Bristol	42	65,394	66,155	0.14	37
Essex	30	40,138	40,138	0.22	27
Franklin	37	46,142	52,472	0.01	36
Hampden	22	20,517	20,517	0.04	21
Hampshire	31	32,349	32,349	0.00	31
Middlesex	55	79,225	97,055	0.55	51
Norfolk	33	125,591	127,740	0.59	29
Plymouth	29	54,730	70,464	0.57	27
Suffolk	1	533	533	0.00	1
Worcester	56	89,791	90,215	0.13	55
Totals	355	571,065	615,205	0.34	327
1939-40 Season					
Barnstable	2	3,353	3,353	0.00	2
Berkshire	10	13,468	13,468	0.34	8
Bristol	49	73,955	75,025	0.09	46
Dukes	1	538	538	0.00	1
Essex	28	44,885	44,885	0.00	28
Franklin	36	48,772	50,943	0.06	34
Hampden	19	16,016	16,016	0.00	19
Hampshire	26	26,233	26,233	0.00	26
Middlesex	58	85,104	105,125	0.15	55
Norfolk	33	110,351	185,841	1.67	29
Plymouth	32	58,671	60,138	0.04	32
Worcester	52	91,657	91,657	0.00	52
Totals	346	573,000	673,222	0.51	332

Twenty-Year Testing Period Shows Progress in Eradication

Table 6 shows testing data for a twenty-year period. The volume of testing work has increased markedly during this period. The Massachusetts poultry industry has attained a very commendable position by having increased the percentage of total tested birds which exist in non-reacting flocks from 9.77 percent to 86.79 percent. Without doubt, these results show that pullorum-free flocks can be established and maintained.

TABLE 6. TWENTY-YEAR PULLORUM DISEASE TESTING SUMMARY

Season	Flocks	Birds	Total Tests	Positive Tests Percent	Non-reacting Flocks	Birds in Non-reacting Flocks Number	Birds in Non-reacting Flocks Percent
1920-21	108	24,718	24,718	12.50	25	2,414	9.77
1921-22	110	29,875	29,875	12.65	27	4,032	13.50
1922-23	121	33,602	33,602	7.60	29	5,400	16.07
1923-24	139	59,635	59,635	6.53	38	11,082	18.58
1924-25	156	66,503	66,503	2.94	79	25,390	38.18
1925-26	201	67,919	67,919	2.31	124	33,615	49.49
1926-27	249	127,327	127,327	4.03	114	40,269	31.63
1927-28	321	190,658	232,091	6.52*	138	80,829	42.39
1928-29	413	254,512	304,092	4.25*	228	153,334	60.25
1929-30	460	331,314	386,098	2.17	309	203,038	66.97
1930-31	447	356,810	402,983	1.47	328	267,229	74.89
1931-32	455	377,191	420,861	0.90	355	298,534	79.15
1932-33	335	296,093	300,714	0.47	276	238,074	80.41
1933-34	262	263,241	284,848	0.53	229	212,782	80.83
1934-35	244	281,124	301,887	0.39	213	251,778	89.56
1935-36	252	329,659	344,081	0.30	230	315,215	95.95
1936-37	307	448,519	461,762	0.37	281	424,431	94.63
1937-38	308	480,227	497,769	0.17	286	457,466	95.26
1938-39	355	571,065	615,205	0.34	327	469,134	82.15
1939-40	346	573,000	673,222	0.51	332	497,356	86.80

*Based on total birds tested: 1927-28, 190,658 birds; 1928-29, 254,512 birds.

Pullorum Disease in Turkeys

During the past year 26 turkey flocks representing 7,079 samples were tested. Reactors were detected in three flocks. Ten reactors were necropsied from these three flocks and the causative organism was isolated from all three. In two flocks pullorum disease had been diagnosed in young poults earlier in the season. The testing of turkey flocks with the tube test revealed that, in cases where the infection may be present, reactions in varying degrees are likely to be observed; whereas in flocks which have not been infected, few or no reactions are encountered. In general it appears that infected turkeys do not react as strongly as do infected chickens. A diagnostic dilution not higher than 1:25 should be employed to detect turkey "carriers" of pullorum infection. Infected turkey flocks can be retested at short intervals until reactors are no longer detected. Whether a flock in such a status is free of the infection requires further observation.

Turkey raisers should exercise every precaution in selecting pullorum-free stock. Owners of turkey breeding flocks should determine the pullorum status of their flocks by testing. The tube agglutination method is the most reliable means of determining the presence or absence of infection.

Comments and Suggestions

1. *Annual Testing of Flocks*—A flock should be tested each year to determine whether or not infection is present. The testing of flocks known to be infected should be decided upon only after certain factors have been considered. If the breeding value of the flock does not warrant the expenditure for testing, then the owner should follow a plan of flock replacement. After a flock has once been determined free from the disease, it should be tested annually to ascertain whether or not infection has been introduced. While the percentage of cases in which infection has appeared in previously non-reacting flocks is small, one cannot state which flocks are or are not free from the disease without testing. As has been reported in the discussion on "breaks" the amount of infection is usually small in flocks in which infection reappears. If such flocks were not tested annually, the infection would have an opportunity to multiply and become difficult and costly to eradicate.

2. *Testing of All Birds on Premises*—During the past year, 60 of the 346 tested flocks were only partially tested, and of these 52 revealed no reactors; but that does not necessarily mean that the entire flock was negative because it is impossible to determine the true status of every bird on the premises by testing only part of the flock. Flock owners who practice this system of testing may sooner or later find pullorum infection in their flocks. This holds true whether or not the untested birds are used for breeders. Pullorum infection may spread from adult bird to adult bird. Flock owners should not take the risk of permitting infection on the premises. The actual money saved through partial flock testing might be far less than the money lost through retesting and from reduction in sales.

A flock owner who follows a sound program will have the advantage over one who follows a plan that contains dangerous loopholes for infection to enter his flock. The flock owner who follows an unsound plan should realize that his business may suffer, and that he may indirectly ruin the business operations of other owners who buy from him. Sellers and buyers should have a common interest in their respective enterprises.

3. *Official Recognition of Pullorum-Free Flocks*—The Massachusetts Department of Agriculture recognizes two official grades for pullorum-free flocks: "Massachusetts Pullorum Passed" and "Massachusetts Pullorum Clean." In the final list published by the Department in April 1940, 199 "pullorum clean" flocks representing 374,858 birds and 42 "pullorum passed" flocks representing 52,594 birds were reported. Among the 346 flocks tested, 280 were classified as 100 percent tested and non-reacting, which would make them eligible for one ot the two grades. Hence, 39 flock owners whose flocks were eligible did not avail themselves of a service which may be regarded as a definite aid to the poultry industry. The official lists of "pullorum passed" and "pullorum clean" flocks receive wide distribution among poultrymen in this and other states.

4. *National Poultry Improvement Plan*—The National Poultry Improvement Plan has been in operation for five years and there has been a steady increase in the participation in all phases of the plan and especially in the pullorum-disease control and eradication phase. According to official records, Massachusetts is a participant in the plan. Concerning the pullorum phase, it appears that relatively few Massachusetts poultrymen know that they are actually participating in the plan. Poultrymen

are urged to become more familiar with the different steps in the plan. Information concerning the National Plan may be obtained by writing either to the Massachusetts Department of Agriculture, State House, Boston, or to the United States Department of Agriculture, Washington, D. C., for Miscellaneous Publication No. 300 (revised January 1940), entitled "The National Poultry Improvement Plan." The primary objectives of the plan should receive careful consideration by the Massachusetts poultry industry. It should be emphasized, however, that certain features of the plan are inferior in soundness of disease control and eradication to the Massachusetts regulations.

At the Thirteenth Annual Conference of Laboratory Workers in Pullorum Disease Control (representing delegates from Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Pennsylvania, Rhode Island, Vermont, Virginia and West Virginia), held May 22-24, 1940, the following recommendations concerning U. S. pullorum grades were unanimously approved:

a. That the Conference go on record as reasserting disapproval of the *pullorum tested* grade.

b. That no grade lower than *pullorum passed* be approved.

c. That discontinuing the *pullorum clean* grade would be a decidedly backward step, and that the dropping of this grade be opposed.

d. That when breaks occur in hitherto clean flocks, such flocks be removed immediately from the *pullorum clean* list; that, when two consecutive agglutination tests made on such flocks (the first from four to six weeks following the disqualifying test, and the second from four to six weeks later) reveal no reactors, the flocks may be returned to the *pullorum clean* list, provided the disqualifying test showed not more than 0.5 percent infection in the entire tested flock, or there were not more than five positive reactors in the flock.

e. That the Conference reassert its adherence to the standard tube agglutination method, and that it recognize no other testing method as standard or approved.

f. That the rule requiring that all chickens over four months of age be tested shall apply to both *pullorum passed* and *pullorum clean* flocks.

g. That the Conference place itself on record as strongly urging its members to conduct turkey testing programs, in order to determine the real value of the pullorum agglutination test as applied to turkeys, with the ultimate view of applying the same routine testing plan to turkeys that is now carried out on chickens, provided the method is found to be of real merit.

The committee recommends further that until the full merits of turkey testing are established, poultrymen be urged not to incubate chicken and turkey eggs on the same premises, and not to brood and rear chickens and turkeys on the same farm or premises.

h. That no eggs from pullets be used for hatching until the pullets have been tested and their pullorum-free status has been established.

Massachusetts poultrymen are urged to make the fullest use of the official grading of pullorum disease tested flocks.

5. *Factors Influencing Efficiency and Economy of Testing*—In order that the testing work may be organized on an economical basis and the same

high quality service maintained as in the past, continued cooperation of poultrymen in meeting the following suggestions is essential:

a. Filing applications.

Applications for testing service should be filed by September 1. The early filing of application cards stating the dates at which testing service is desired enables the laboratory to estimate testing demands during subsequent months. With this information available, it is possible to employ and train sufficient desirable help early enough in the season to render maximum service.

b. Estimating the number of birds to be tested.

This should be done as accurately as possible. Later, preliminary notice and verification card permit adjustment of the original estimate. The time allotted for handling a flock is based upon the number of birds to be tested. When a blood collector finds considerably more birds than the verification card states, it may be necessary to arrange for a future date to complete the work. This means added expense and delay in obtaining final testing results.

c. Testing in September and October.

The number of tests requested for the months of November and December has become so large that it is difficult to meet demands. More testing in September and October would relieve this congestion. Also, weather conditions are more favorable during these months and more efficient collection of blood samples is possible.

d. Forwarding payment.

Regulations require payment in full at the rate of five cents per bird prior to the collection of the blood samples. Partial payment is not sufficient for making final arrangements. Early filing of application for testing service is urged, but payment need not be sent with the application card when it is filed early.

e. Preparing for collection of blood samples.

The final notice to the flock owner includes the details. Cooperation on the part of the flock owner in being prepared to start work immediately upon arrival of the blood collector, in providing suitable means for penning and catching birds, and in furnishing a sufficient number of assistants is essential if blood collectors' services are to be utilized to the best advantage. General flock culling and any other interruptions in the work should be avoided. Following these suggestions permits a greater number of samples to be collected and helps to keep field expenses at a minimum.

f. Returning report cards.

Post cards for reporting on the services of blood collectors are furnished to each flock owner. These cards should be returned immediately after the collection of blood samples has been completed. Continuous close supervision of blood collection by a field representative is not feasible because of the expense. For this reason, flock owners are requested to report on the services rendered by blood collectors. Prompt return of these cards keeps the laboratory informed on the field work and permits corrective measures to be taken when needed.

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MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

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Inspection of Commercial Feedstuffs

By Philip H. Smith

This is the forty-sixth report of feeding stuffs inspection and presents the results of analysis of 1,628 samples of feeding stuffs intended for livestock and poultry consumption, collected during the year ending September 1, 1940.

MASSACHUSETTS STATE COLLEGE
AMHERST, MASS.

INSPECTION OF COMMERCIAL FEEDSTUFFS

By Philip H. Smith [1]

It is the intent and purpose of the Feeding Stuffs Act to prevent fraud and to insure to the consumer information that will make possible the intelligent selection of commercial feedstuffs. With this end in view the law requires manufacturers to label their goods in such a way as to make this information available. The fact that a guarantee is attached to a feeding stuff should not be taken to mean that the feed has exceptional feeding value. Anything not absolutely injurious to animals may be incorporated in a feeding stuff so long as the guarantee tells the truth. The purchaser should take nothing for granted, but should read the guarantee and judge for himself. It is a commendable fact that, with few exceptions, manufacturers have been willing to comply fully with the requirements of the law.

This, the forty-sixth report, contains the analyses of 1,628 samples representing 851 brands of feeding stuffs for the production of which 182 manufacturers were responsible. In addition to the analyses reported, 191 samples of cereal meals and other products not subject to registration were examined for content and purity.

For 1940 there were registered for sale in Massachusetts 1,215 brands of feeding stuffs produced by 222 manufacturers. While effort is made to collect at least one sample of every brand of feed registered, it has not been found possible to make the collection complete. The State is thoroughly canvassed at least twice each year and it is believed that the samples collected represent the greater part of the tonnage sold.

Attention is especially called to the table of analytical deficiencies. While an occasional minor lapse is perhaps unavoidable, serious deficiencies often repeated indicate either lack of proper control at the manufacturing plant or intentional dishonesty.

For the first time tests on oil and oil products for Vitamin D potency are reported.

In addition to the regular report of inspection an article is included relative to Grain Standards and the consumer. Conclusions are very largely drawn from samples of corn and oats purchased by State Institutions and submitted to the laboratory in order to check against specifications.

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[1] The following staff members assisted in the inspection: John W. Kuzmeski, Albert F. Spelman and Leo V. Crowley, chemists; Frederick A. McLaughlin, microscopist; James T. Howard, inspector; Cora B. Grover, clerk.

Complete Average Analyses of Feeds Collected (Per Cent)

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Acme-Evans Co.									
1	Acme Wheat Standard Middlings with Screenings	11.8	16.4	15.0	4.8	3.5	53.4	8.2	9.5	5.4
1	Homlik (Corn Feed Meal)	13.1	9.3	9.0	5.6	3.5	66.8	3.3	3.0	1.9
	Albers Bros. Milling Co.									
1	Proven Cali Manna	9.1	27.7	25.0	1.1	4.0	48.3	3.8	5.0	7.0
	E. T. Allen Co.									
2	Empire 41% Protein Cottonseed Meal	7.2	41.5	41.0	6.4	5.5	28.9	9.3	13.0	6.7
	Allied Mills, Inc.									
2	Brewers Dried Grains	9.2	29.9	24.0	5.8	5.0	37.5	14.3	18.0	3.3
1	Economy 20% Dairy Feed	13.0	20.6	20.0	3.5	3.5	48.0	7.7	11.0	7.2
1	June Pasture (Alfalfa Meal and Beet Molasses)	15.6	13.0	10.0	0.9	0.5	42.2	18.8	21.0	9.5
1	Red Feather Egg Mash	10.9	18.6	18.0	4.8	3.5	52.8	6.9	8.0	6.0
1	Red Feather Growing Mash	11.3	16.8	15.5	4.2	3.5	54.0	6.5	7.0	7.2
3	Sugarine 20% Dairy Feed	11.9	21.6	20.0	3.9	3.5	45.9	9.3	12.0	7.4
2	Sugarine 16½% Dairy Feed	12.6	19.4	16.5	3.8	3.0	47.6	9.4	12.0	7.2
1	Wayne Chick Feed	13.0	10.4	9.0	4.6	2.0	68.7	1.5	4.0	1.8
2	Wayne Chick & Broiler Ration	11.6	18.9	18.0	5.2	3.5	52.3	6.0	8.0	6.0
1	Wayne Chick Starter (1939 registration)	10.8	19.1	17.0	5.3	1.0	52.0	6.0	7.0	6.8
1	Wayne Chick Starter	13.3	18.1	18.0	5.0	1.0	51.2	5.5	7.0	6.9
2	Wayne Complete Calf Feed	12.3	16.6	16.0	1.1	3.3	51.8	8.0	9.0	7.2
3	Wayne Egg & Breeder Mash	10.8	20.2	20.0	4.7	3.5	50.7	5.8	8.0	7.8
1	Wayne Fitting Ration	11.4	14.8	12.0	3.4	3.5	56.4	7.4	9.0	6.6
1	Wayne Flushing Mash	10.6	21.2	20.0	3.5	3.0	52.2	4.3	6.0	8.2
2	Wayne Growing Mash	12.2	16.3	16.0	5.0	3.5	54.1	6.1	7.0	6.3
3	Wayne Horse Feed	13.2	10.3	9.5	3.0	3.0	65.3	5.5	8.0	2.7
3	Wayne 26% Mash Supplement	11.0	27.4	26.0	5.0	3.5	35.9	8.4	10.0	12.3

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Allied Mills, Inc.—Concluded									
1	Wayne Rabbit Feed	10.1	14.4	13.0	3.5	3.0	57.0	9.1	11.0	5.9
2	Wayne Turkey Growing Mash	10.8	20.6	20.0	5.2	3.5	48.6	5.9	8.0	8.9
1	Wayne Turkey Starting Mash	10.9	23.1	25.0	5.0	4.0	47.6	4.5	8.0	8.9
2	Wayne-Ameo 24% Dairy Ration	11.5	24.6	24.0	4.4	4.0	43.8	7.7	9.0	8.0
5	Wayne-Ameo 20% Dairy Ration	12.2	20.8	20.0	4.1	4.0	48.0	7.8	9.0	7.1
	American Maize-Products Co.									
1	Amaizo Gluten Meal	8.5	43.5	41.0	2.0	1.0	39.0	5.5	4.0	1.5
2	Cream of Corn Gluten Feed	12.6	25.5	25.0	2.6	2.0	46.0	6.9	8.5	6.1
	A. P. Ames & Co.									
2	Ames Complete Cycle Ration	11.9	17.1	16.0	5.1	4.0	52.8	5.1	6.0	8.0
2	Ames Egg Mash	11.1	21.1	20.0	5.5	4.0	47.0	5.3	7.0	10.0
2	Ames 20% Milk Maker	11.5	21.7	20.0	4.1	4.0	47.0	8.5	10.0	7.2
2	Ames Starter & Broiler Ration	11.5	18.3	17.5	4.8	4.0	51.3	5.6	7.0	8.5
	Arcady Farms Milling Co.									
1	Arcady Complete All Mash Chick Starter Pellets	11.8	17.5	17.0	3.3	4.0	54.8	5.4	6.0	7.2
1	Arcady Complete Broiler Ration	10.7	17.0	17.0	4.3	4.0	52.0	7.9	6.0	8.1
1	Arcady Complete Laying Ration	10.7	20.9	16.0	4.9	4.0	46.1	8.3	7.0	9.1
1	Arcady Complete Rabbit Feed (Pellets)	12.2	12.1	12.0	2.6	2.5	48.9	15.0	20.0	9.2
1	Arcady Fitting Ration	14.1	14.4	12.0	3.6	3.0	52.7	6.6	10.0	8.6
2	Arcady Growing Mash	11.6	16.9	17.0	4.3	4.0	49.9	7.9	7.0	9.4
4	Arcady Laying Mash	10.3	21.5	20.0	5.0	4.0	47.0	7.3	7.0	8.9
4	Arcady 24% Open Formula Production Ration	12.6	25.3	24.0	4.1	4.0	40.8	7.8	9.0	9.4
4	Arcady 20% Open Formula Production Ration	12.3	21.3	20.0	3.8	4.0	44.6	8.1	9.0	9.9
2	Arcady Sweet 16 Dairy Feed	13.9	18.2	16.0	4.5	3.5	44.1	10.3	12.5	9.5
2	Arcady Sweet Mixing Feed	18.3	9.4	9.0	1.7	1.5	48.5	9.3	12.0	12.8
1	Arcady Wonder Turkey Growing Mash	11.5	23.0	22.0	5.0	1.5	45.5	6.3	6.0	8.7
1	Arcady Wonderlas for Poultry	14.7	29.4	30.0	4.6	4.0	35.3	5.4	6.0	10.6
1	Beets-Oats Horse & Mule Feed	13.7	8.6	10.0	2.5	3.0	63.9	7.1	11.0	4.2
1	Sunkist Egg Mash Pellets	10.4	20.1	20.0	4.3	4.0	48.8	7.7	8.0	8.7
4	Wonderfat Station Feed	10.6	15.6	12.5	5.8	4.5	57.4	5.9	6.0	4.7

	Archer-Daniels-Midland Co.									
1	Old Process 37% Protein Linseed Meal	9.7	37.7	37.0	5.6	4.5	34.4	6.9	9.0	5.7
1	41% Protein Soybean Oil Meal	12.2	44.2	41.0	5.0	4.0	27.0	4.9	7.0	5.7
	Ashcraft-Wilkinson Co.									
6	Cow-Lta Brand 41% Protein Cottonseed Meal	7.8	41.5	41.0	6.4	5.0	27.9	10.6	13.0	5.8
1	Telsun Brand Dried Citrus Peel and Pulp	11.4	6.0	6.0	2.0	2.5	59.9	9.9	11.5	10.8
	W. E. Atkinson Co.									
2	Weaco Laying Mash	10.6	19.8	20.0	4.8	4.0	49.7	5.9	7.0	9.2
	E. W. Bailey & Co.									
1	Bailey's Capital Dairy Ration	11.7	25.6	24.0	4.2	4.5	44.0	6.6	9.0	7.9
1	Bailey's Favorite Dairy Ration	11.6	20.3	20.0	4.9	4.0	47.3	7.3	7.5	8.6
1	Bailey's 20 Special	12.3	20.9	20.0	3.8	3.5	49.5	6.5	9.0	7.0
1	Bailey's Pennant Brand Complete Layer	11.8	16.5	15.5	4.0	4.0	52.7	6.3	6.5	8.7
1	Bailey's Pennant Brand Complete Starter & Broiler	10.9	17.3	17.0	4.4	4.0	51.9	7.0	6.0	8.5
1	Bailey's Pennant Brand Growing Feed	11.3	14.9	15.0	4.5	4.5	53.4	6.2	6.0	9.7
2	Bailey's Pennant Brand Horse Feed	14.2	12.0	10.75	3.8	3.5	61.5	5.6	6.5	2.9
1	Bailey's Pennant Brand Laying Mash	11.0	20.0	20.0	4.7	4.5	46.4	6.7	7.0	11.2
1	Bailey's Pennant Brand Laying Pellets	11.6	16.9	15.0	4.1	4.0	54.5	5.7	6.0	7.2
1	Pennant Brand Stock Feed	12.0	10.6	9.5	4.3	4.0	57.2	9.3	9.5	6.6
	Franklin Baker Div. General Foods Corp.									
1	Baker's Cooked Palm Kernel Oil Meal	10.5	18.6	19.0	6.6	6.0	46.2	14.4	12.0	3.7
	Barber & Bennett, Inc.									
1	Big Ben 21% Dairy Feed	13.1	25.8	24.0	4.1	3.5	43.0	7.1	10.0	6.9
1	Big Ben 20% Dairy Feed	12.7	22.5	20.0	3.6	3.5	47.3	6.8	10.0	7.1
1	Big Ben 16% Dairy Feed	12.9	18.0	16.0	3.8	3.5	50.8	7.8	11.0	6.7
1	Big Ben Laying Mash	10.8	20.2	19.0	4.9	4.0	49.8	5.9	7.0	8.4
2	Double Value 20% Dairy Feed	12.1	21.0	20.0	4.3	3.5	49.3	7.3	10.0	6.0
1	Fort Orange Chic-Razer Mash	11.9	17.3	17.5	4.8	4.0	53.2	4.8	6.0	8.0
1	Fort Orange 32% Dairy Feed	12.4	32.5	32.0	4.4	4.0	37.3	6.3	8.5	7.1
1	Fort Orange 24% Dairy Feed	12.9	24.3	24.0	4.9	4.0	43.6	7.8	9.0	6.5
2	Fort Orange 20% Dairy Feed	12.8	21.0	20.0	4.6	4.0	47.8	7.7	8.5	6.1
2	Fort Orange 12% Fitting & Calf Grain Ration	14.5	13.5	12.0	4.1	3.5	57.6	5.7	8.0	4.6
2	Fort Orange Golden Test Ration	12.3	20.5	18.0	4.7	4.5	49.4	7.5	8.5	5.6
1	Fort Orange Growing Mash	11.2	18.1	17.5	5.0	4.0	53.7	4.7	6.5	7.3
2	Fort Orange Horse Feed	13.4	11.4	9.0	3.4	3.0	61.9	6.5	10.0	3.4
2	Fort Orange Laying Mash	10.8	20.7	19.0	5.5	4.0	49.1	4.6	7.0	9.3
2	Fort Orange Pig and Hog Feed	12.1	15.9	15.0	4.3	3.5	57.1	5.6	6.5	5.0
1	Fort Orange Succulent Mixture	13.7	11.0	9.0	2.5	1.0	51.6	13.1	15.0	8.1
1	Fort Orange Turkey Grower	11.0	20.5	20.0	4.3	3.5	50.8	5.3	6.0	8.1

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Beacon Milling Co., Inc.									
2	Auburn Dairy Feed	12.5	20.8	20.0	4.4	3.5	48.4	6.8	10.0	7.1
4	Beacon Sweet "24"	12.1	24.5	24.0	1.3	4.0	44.5	6.7	9.0	7.9
2	Beacon "20"	12.1	19.7	20.0	4.8	4.5	49.5	7.2	9.0	6.7
2	Beacon Sweet "20"	13.0	21.2	20.0	4.4	4.0	48.5	6.8	9.0	6.1
1	Beacon "16"	12.3	17.4	16.0	4.8	4.25	53.0	6.5	9.0	6.0
1	Beacon Battery Broiler Feed	10.8	18.1	17.0	5.1	4.0	53.0	4.8	6.0	8.2
1	Beacon Battery Laying Ration	11.6	16.7	16.0	5.3	4.0	51.2	6.6	7.75	8.6
3	Beacon Breeders Mash	9.7	21.3	20.0	5.9	4.0	45.5	6.6	7.5	11.0
3	Beacon Broiler Feed	12.1	20.4	18.5	5.3	4.0	50.1	4.7	7.0	7.4
1	Beacon C-C Pellets	12.2	18.2	18.0	6.3	1.0	51.1	3.5	5.0	5.7
1	Beacon Calf Grain	11.0	15.4	14.0	4.0	4.0	53.1	7.3	10.0	6.2
1	Beacon Calf Pellets	11.9	24.8	24.0	3.8	3.0	50.8	3.2	4.0	5.5
1	Beacon's Cayuga Horse Feed	13.0	12.4	10.0	3.0	2.5	61.2	6.0	9.0	4.4
2	Beacon Complete Starting Ration	10.9	18.7	17.5	5.2	4.0	51.4	4.8	6.0	9.0
1	Beacon Dairy Ration	10.3	24.8	24.0	4.9	4.5	44.5	7.5	9.0	8.0
1	Beacon Duck Fattener	11.7	17.2	14.0	4.1	4.5	55.8	4.4	5.5	6.8
3	Beacon "22" Egg Mash	10.0	22.7	22.0	6.1	4.5	44.7	5.6	7.5	10.9
3	Beacon Fitting Ration	13.1	15.4	14.0	4.1	4.0	55.7	6.3	8.0	5.4
3	Beacon Fleshing Pellets	10.3	16.1	15.0	4.5	3.5	57.1	6.3	7.5	5.7
1	Beacon Goat Ration	11.8	17.7	16.0	4.4	4.0	51.9	7.5	10.0	6.7
1	Beacon "18" Growing Mash	9.1	18.4	18.0	6.1	4.0	49.3	6.5	7.5	10.6
1	Beacon "16" Growing Mash	10.2	17.4	16.0	5.8	4.0	51.1	6.8	7.5	8.7
2	Beacon "20" Laying Mash	10.6	20.7	20.0	6.1	4.0	46.4	6.1	7.5	10.1
4	Beacon Test Cow Ration	12.6	18.8	18.0	5.0	4.75	50.4	7.4	9.0	5.8
2	Beacon Turkey Fitting Ration	12.5	11.7	10.0	3.2	3.0	62.9	6.1	9.0	3.6
2	Beacon Turkey Growing Feed	9.7	21.2	20.0	5.5	4.0	48.4	6.7	7.0	8.5
2	Beacon Turkey Starter	10.2	24.8	21.0	5.6	4.0	44.2	4.7	6.0	10.5
1	Be-Co-Lass	14.0	11.7	11.0	1.7	1.0	51.4	14.5	16.0	6.7
2	Cayuga "16"	13.6	16.6	16.0	3.3	3.5	52.4	6.8	10.0	7.3
	Berkshire Coal & Grain Co., Inc.									
2	Berkshire Hills Sweet Dairy	12.9	20.1	20.0	4.4	4.5	48.2	7.0	8.0	7.4
3	Green Mountain Dairy Ration	11.1	22.9	23.0	4.9	5.0	45.7	8.4	10.0	7.0

4	Green Mountain Laying Mash	10.7	19.8	19.0	5.8	4.0	46.6	5.7	8.0	11.4
1	"Gro Fast" Berkshire All Mash Complete Chick Starter & Grower	11.3	18.1	16.0	6.4	4.0	50.1	4.8	5.0	9.3
	Albert Bieren									
1	Lexington Egg Mash	11.3	18.7	19.0	5.0	4.5	47.6	6.2	8.0	11.2
	Bisbee Linseed Co., Inc., Amsterdam, N. Y.									
2	"K & M" Brand 34% Protein Old Process Linseed Oil Meal	10.6	36.1	34.0	6.7	5.0	33.3	7.8	10.0	5.5
	Bisbee Linseed Co., Philadelphia, Penn.									
1	Bisbee Brand 34% Protein Old Process Linseed Meal	9.0	34.2	34.0	6.2	5.0	37.2	7.8	10.0	5.6
	Blatchford Calf Meal Co.									
1	Blatchford's Calf Meal	10.6	26.9	25.0	4.4	4.5	44.9	5.6	6.0	7.6
	Borden Grain Co.									
2	Borden's Dairy Feed	11.4	23.0	22.0	4.3	4.5	48.5	5.7	9.0	7.1
2	Borden's Laying Mash	11.6	18.9	19.0	4.3	4.5	47.2	6.8	7.0	11.2
1	Borden's Starter and Growing Feed	11.2	19.3	17.0	4.7	4.0	49.6	5.9	6.0	9.3
	C. W. Brister & Son									
2	Prize Mixed Feed with Ground Screenings not Exceeding Mill Run	12.5	15.3	13.0	4.0	3.5	57.4	6.5	9.0	4.3
	Brown Bros.									
1	Brown's Dairy Feed	14.1	19.9	20.0	4.4	4.0	48.1	7.3	9.0	6.2
	George B. Brown Corp.									
1	Brown's Dairy Feed	9.9	21.1	20.0	4.2	4.0	47.7	10.2	12.0	6.9
1	Brown's Egg Mash	10.0	16.9	18.0	5.0	5.0	49.7	7.4	11.0	11.0
	Buckeye Cotton Oil Co.									
2	Buckeye 41% Protein Soybean Oil Meal	8.4	45.9	41.0	5.1	4.5	29.5	5.4	7.0	5.7
	C. W. Burckhalter, Inc.									
1	Burck-Brand Powdered Skim Milk[1]	4.1	34.0	32.0	0.8	0.75	–	–	–	8.1
	A. B. Caple Co.									
1	Alfalfa Meal	10.8	18.5	13.0	2.2	1.0	37.8	23.4	33.0	7.3
1	Alfalfa Stem Meal	12.9	11.9	9.0	1.4	0.8	34.7	33.5	40.0	5.6
	Center Milk Products Co.									
2	Center Dried Skim Milk[2]	6.2	32.7	33.0	1.0	1.0	–	–	–	8.0

[1] Lactose 53.0 [2] Lactose 52.1

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Central Soya Co., Inc.									
5	Central Soy Bean Oil Meal	11.0	43.9	41.0	5.9	4.0	28.1	5.5	7.0	5.6
	S. J. Cherry & Sons, Ltd.									
2	Wheat Bran	14.5	16.4	14.0	5.0	3.5	50.2	8.8	11.5	5.1
	Clinton Co.									
1	Clinton Corn Gluten Meal	9.4	42.8	41.0	3.1	1.0	39.5	4.2	4.0	1.0
	Coatsworth & Cooper									
2	"C and C" Wheat Bran	12.6	16.6	15.0	5.2	3.5	49.8	9.7	11.5	6.1
1	"C and C" Wheat Shorts	12.5	18.0	18.0	5.2	5.0	52.9	7.2	8.0	4.2
	Coles Feed & Grain Co.									
2	Fortune Producer Mash	11.5	20.4	20.0	5.4	4.0	48.1	6.5	5.0	8.1
	Community Feed Stores									
1	Community Bulky Special	11.9	9.1	9.0	2.1	2.75	49.2	20.9	21.5	6.8
1	Community 20 Dairy Ration	11.4	20.3	20.0	6.0	4.5	49.3	6.4	9.0	6.6
1	Community Growing Mash	11.9	18.5	17.5	5.4	4.5	49.8	6.6	7.5	7.8
1	Community Laying Mash	12.6	20.0	20.0	5.6	4.5	45.9	5.8	7.0	10.1
1	Hilltop 20 Dairy Ration	11.9	20.2	20.0	4.3	4.0	45.0	11.4	12.0	7.2
	Consolidated Rendering Co.									
1	Corenco Cod and Haddock Meal [3]	7.9	64.5	62.0	5.6	2.0	–	–	–	22.0
1	Corenco 60% Meat Scrap [4]	5.6	62.3	60.0	8.9	6.0	–	–	–	20.6
1	Corenco 55% Meat Scrap [5]	7.6	53.9	55.0	9.4	6.0	–	–	–	24.9
4	Corenco 45% Meat and Bone Scrap [6]	7.0	46.0	45.0	10.6	6.0	–	–	–	35.0
	Copeland Flour Mills, Ltd.									
3	Copeland's Dandy Wheat Shorts	13.6	18.2	18.0	5.6	5.0	52.7	6.1	8.0	3.8

	Corn Products Refining Co.									
3	Buffalo Corn Gluten Feed	11.6	25.4	25.0	2.1	2.0	46.9	7.6	8.5	6.1
1	Buffalo Corn Gluten Feed (Sweetened) (1939 registration)	9.9	19.7	18.0	2.0	1.5	55.3	7.5	8.5	5.6
3	Buffalo Corn Gluten Feed (Sweetened)	12.3	21.6	20.0	2.1	1.0	51.6	6.5	7.5	5.9
4	Diamond Corn Gluten Meal	10.2	41.2	41.0	2.6	1.0	41.6	3.1	4.0	1.3
	Nicolas Courcy Grain Co.									
2	Courcy's Dairy Feed	13.3	20.5	21.0	4.2	4.5	50.1	5.8	8.0	6.1
2	Courcy's Eastern Laying Mash	11.3	16.4	16.0	4.9	4.0	51.0	6.1	7.0	10.3
2	Courcy Growing Feed	11.0	16.2	16.0	4.7	4.0	49.4	6.3	7.0	12.1
2	Courcy Heavy Mixed Feed	12.0	17.1	16.0	4.3	4.5	54.1	6.1	7.0	6.1
	Cover & Palm Co.									
2	C & P Grade A Laying Mash	10.3	20.4	20.0	4.5	4.0	46.6	5.4	7.0	12.8
2	C & P Growing Mash	10.7	18.9	17.0	4.6	4.0	49.8	5.4	7.0	10.6
2	C & P Starter & Broiler Ration	10.6	18.1	17.0	4.3	4.0	52.0	5.0	6.0	10.0
	Curley Grain & Fuel Co.									
2	Crystal All Grain Starting Food	11.0	17.4	15.0	4.2	5.0	57.1	4.0	4.0	6.3
2	Crystal Complete Growing Mash	12.1	15.0	15.0	4.5	4.0	59.2	3.4	4.0	5.8
2	Crystal 24% Dairy Ration	10.7	25.3	24.0	4.6	5.0	43.4	7.7	9.0	8.3
2	Crystal 20% Dairy Ration	11.1	20.8	20.0	4.1	4.0	49.2	7.7	12.0	7.1
2	Crystal 16% Dairy Ration	10.0	17.4	16.0	4.0	4.0	50.9	10.6	11.0	7.1
2	Crystal Egg Mash	10.5	19.9	18.0	5.2	4.0	48.3	5.1	6.0	11.0
2	Crystal Growing Mash	11.2	18.1	16.0	4.9	5.0	53.8	4.2	5.0	7.8
2	Crystal Brand Horse Feed	13.1	12.3	11.0	3.6	3.0	62.5	5.0	10.0	3.5
1	Crystal Brand Starting Food for Broilers	9.5	18.6	16.0	4.6	4.0	55.8	3.9	4.5	7.6
2	Crystal Brand Stock Feed	11.1	13.1	12.0	4.4	1.0	52.8	12.7	12.0	5.9
2	Premier Brand Stock Feed	11.3	9.5	9.0	3.6	4.5	60.1	10.1	13.5	5.1
	Dehydrating Process Co.									
2	Protine Brand White Fish Meal [7]	5.3	67.2	63.0	5.6	4.0	–	–	–	23.1
	Delaware Mills, Inc.									
1	Delaware Complete Egg Mash	13.1	17.7	15.0	4.3	4.0	53.4	5.9	7.0	5.6
1	Delaware 85% Horse Feed	12.9	10.5	9.0	4.0	3.0	62.0	7.4	9.0	3.2
1	Delaware Starter & Broiler Ration	13.5	19.9	18.0	4.8	4.5	49.7	5.5	6.0	6.6
1	Delaware Sweet 20% Dairy Feed	13.1	19.1	20.0	4.2	4.5	51.1	6.1	10.0	6.4
2	Indian Growing Mash	12.6	17.9	15.0	4.5	4.0	52.8	5.4	7.0	6.8
3	Indian Laying Mash	13.2	18.1	18.0	4.3	4.0	51.8	5.7	8.0	6.9
1	Indian Sweet 24% Dairy Feed	11.7	23.8	21.0	3.9	3.5	44.5	9.0	12.0	7.1
2	Indian Sweet 20% Dairy Feed	12.8	20.6	20.0	3.1	3.5	45.8	9.6	12.0	8.1

[2] Phosphoric acid 9.2 [4] Phosphoric acid 7.0 [5] Phosphoric acid 9.2 [6] Phosphoric acid 13.3 [7] Phosphoric acid 9.1

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Denver Alfalfa Milling & Products Co.									
2	Jack Rabbit Dehydrated Alfalfa Leaf Meal	5.4	22.5	20.0	3.4	2.5	39.4	17.9	18.0	11.4
1	Jack Rabbit Dehydrated Alfalfa Meal 17%	5.9	17.3	17.0	2.8	1.5	41.7	23.5	27.0	8.8
1	13% Triple XXX Alfalfa Meal	6.8	14.3	13.0	2.2	1.0	38.2	26.4	33.0	12.1
	Deutsch & Sickert Co.									
1	White Hominy Feed	9.7	10.9	10.0	5.3	5.0	67.2	4.2	5.0	2.7
	Dewey Bros. Co.									
1	Corn 3 D (Dewey's Distillers Dried) Grains	9.5	26.4	28.0	7.7	8.0	42.0	12.6	14.0	1.8
	Frank Diauto									
2	Diauto's Complete Broiler Ration	11.5	20.1	18.0	5.7	5.0	49.4	4.8	6.0	8.5
2	Diauto's Complete Laying Ration	11.8	17.4	15.0	5.2	4.0	52.9	4.5	6.0	8.2
2	Diauto's Dairy Ration	11.8	17.6	17.0	4.6	3.92	53.1	7.5	7.74	5.4
2	Diauto's Fancy Chick Growing Mash	12.1	18.0	16.0	5.0	4.0	51.4	5.4	5.0	8.1
2	Diauto's Special Egg Mash	11.7	18.6	20.0	5.4	4.0	49.9	5.7	7.0	8.7
	F. Diehl & Son, Inc.									
2	Diehl's Dairy Feed	10.7	20.8	18.0	4.5	3.0	47.6	9.3	14.0	7.1
2	Diehl's Dry Mash	10.2	24.8	16.0	5.3	3.0	42.2	6.1	12.0	11.4
	Dietrich & Gambrill, Inc.									
1	All Purpose Complete Ration	11.2	16.0	15.0	4.7	4.0	57.1	4.5	7.0	6.5
2	D & G Dairy Feed	11.6	20.1	20.0	3.9	4.0	46.1	10.4	12.0	7.9
3	D & G Fleshing Pellets	11.6	16.0	15.0	4.8	3.5	56.9	4.9	6.5	5.8
1	D & G Poultry Conditioning Ration	12.3	16.0	15.0	6.1	6.0	52.2	3.6	6.0	9.8
1	D & G Rabbit Pellets	11.2	14.9	14.0	4.7	3.5	54.9	8.1	9.5	6.2
1	Frederick Dairy Feed	10.4	25.0	24.0	4.7	4.0	41.2	10.6	12.0	8.1
2	Frederick Laying Mash	11.2	20.3	18.0	4.5	4.0	49.8	6.1	8.0	8.1
1	Gambrill's Chick Grains	14.2	9.2	10.0	2.6	2.5	71.5	1.3	3.0	1.2
1	Gambrill's Growing Mash	11.3	18.5	18.0	5.0	4.0	53.1	4.3	7.0	7.8
3	Gambrill's Horse Feed	13.3	10.3	10.0	3.3	3.5	63.3	6.9	12.0	2.9
2	Pen Mar Dairy Feed	11.5	19.8	20.0	4.8	4.0	48.8	8.0	10.0	7.1
1	Pig & Hog Meal	12.4	19.9	18.0	4.4	4.0	49.5	6.0	8.0	7.8

	J. L. Dunnell & Son									
1	Dunnell's Sweetened Dairy Ration	9.6	18.0	18.0	4.2	4.0	46.1	13.2	13.0	8.9
1	Excel 20% Dairy Ration	10.6	20.9	20.0	4.7	4.5	46.6	8.9	10.0	8.3
1	Excel Mash	11.2	23.0	19.0	4.4	5.0	44.4	5.0	6.0	12.0
1	Full Value Mixed Feed	12.9	17.3	15.0	5.0	5.0	52.8	7.4	6.0	4.6
1	Horse Feed with Molasses	12.4	11.5	11.0	3.6	3.5	61.3	7.9	7.0	3.3
	East Bridgewater Farmers Exchange, Inc.									
1	Exchange Dairy Feed	12.1	21.0	20.0	4.3	4.0	50.1	7.7	9.0	4.8
1	Exchange Growing Feed	11.5	17.5	16.0	4.7	4.0	50.9	5.6	7.0	9.8
1	Exchange Mash Feed	10.9	17.5	18.0	4.9	4.0	51.9	5.5	6.0	9.3
	Eastern Grain Co.									
3	Eastern 21% Dairy Ration	12.9	23.8	24.0	3.9	4.0	46.0	6.9	9.0	6.5
4	Eastern 20% Dairy Ration	12.1	21.4	20.0	4.2	4.0	47.8	7.2	9.0	7.0
	Eastern Semolina Mills, Inc.									
2	"Dairy Special" Fancy Mixed Wheat Feed	13.3	15.8	15.5	4.1	5.0	57.1	5.9	8.0	3.5
	Eastern States Farmers' Exchange									
1	Eastern States All-Mash Breeder	10.9	16.8	15.5	4.7	4.0	56.1	4.8	5.5	6.7
2	Eastern States All-Mash Developer	10.9	16.5	14.5	4.6	3.5	55.6	5.5	5.5	6.9
1	Eastern States All-Mash Egg (1939 registration)	10.3	17.4	15.5	5.1	4.0	53.9	6.2	5.5	7.4
1	Eastern States All-Mash Egg	13.1	16.4	15.5	5.0	4.0	52.2	5.8	6.0	7.5
1	Eastern States Breeder Mash	9.1	20.6	20.0	5.0	4.0	47.8	6.5	6.0	10.7
1	Eastern States Calf Starter	11.3	23.1	23.0	4.3	4.0	51.3	3.9	4.0	5.8
4	Eastern States Egg Mash	10.8	20.3	20.0	5.1	4.0	47.9	6.1	6.5	9.8
3	Eastern States Fitting Ration	12.5	14.1	12.0	4.0	3.5	56.8	6.8	8.5	5.8
5	Eastern States Fulpail Dairy Ration	12.2	20.3	20.0	4.5	4.0	49.8	7.0	8.5	6.2
2	Eastern States Highland 20	11.9	19.6	20.0	4.3	4.0	47.3	9.2	11.5	7.7
1	Eastern States Highland 16 Dairy Ration	11.5	17.6	16.0	4.0	4.0	54.5	8.5	11.0	6.9
1	Eastern States Hog Meal	11.1	16.2	15.0	4.6	3.5	56.9	4.0	5.0	7.2
3	Eastern States Horse Feed	11.1	12.0	10.5	3.7	3.5	60.0	5.8	7.0	4.4
2	Eastern States Milkmore Dairy Ration	12.1	25.0	21.0	4.8	4.5	43.9	7.2	8.5	7.0
1	Eastern States Sixteen	13.2	17.0	16.0	4.5	4.0	53.0	6.6	8.0	5.7
2	Eastern States Starting and Broiler Ration	11.7	20.1	18.5	4.8	4.0	54.7	4.3	5.0	7.1
1	Eastern States 32% Supplement Feed	12.8	33.0	32.0	4.3	4.5	33.1	7.2	8.0	9.6
	M. W. Ellis									
2	The Ellis Dairy Feed	11.4	25.2	22.0	4.7	4.0	46.9	7.2	9.0	4.6
4	The Ellis Poultry Mash	11.1	21.1	20.0	5.6	4.0	47.6	5.5	8.0	9.1
2	The Ellis Special Dairy Feed	10.5	19.3	18.0	4.3	4.0	50.7	10.4	10.0	4.8
	Elmore Milling Co., Inc.									
1	Elmore Chixsaver	10.7	19.1	18.0	5.0	4.0	49.6	6.3	6.0	9.3
2	Elmore Complete Laying Ration	11.9	18.2	16.9	5.8	4.0	51.2	6.0	6.0	6.9

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Elmore Milling Co., Inc.—Concluded									
2	Elmore Complete Starter—Broiler	11.2	19.9	18.0	5.6	4.0	50.2	5.7	6.0	7.4
3	Elmore Egg Mash	11.4	20.6	20.0	6.2	4.0	48.2	5.5	8.0	8.1
2	Elmore Fleshing Pellets	12.0	16.9	15.0	4.8	5.0	56.0	5.4	6.0	4.9
2	Elmore Growing Mash	11.6	18.0	17.0	4.5	4.0	53.0	6.2	8.0	6.7
1	Elmore Hog Ration	11.4	17.1	15.0	4.9	5.0	55.8	5.0	6.0	5.8
1	Elmore Horse Feed with Molasses	12.0	10.5	9.0	2.8	2.5	65.3	3.6	11.0	5.8
2	Elmore Improved Calf Meal	10.9	23.0	20.0	4.5	4.0	51.4	3.4	8.0	6.8
1	Elmore M. A. C. Laying Mash	10.5	20.8	18.0	5.7	5.0	47.8	6.6	7.0	8.6
4	Elmore Milk Grains "Twenty-Four"	11.6	21.6	24.0	5.0	4.5	44.0	8.0	10.0	6.8
2	Elmore Milk Grains "Twenty"	11.2	22.5	20.0	5.9	5.5	46.6	8.1	10.0	5.7
1	Elmore Milk Grains "Sixteen"	11.0	20.1	16.0	4.7	5.0	50.4	7.8	10.0	6.0
3	Elmore Stock Feed	10.4	10.7	10.0	5.1	3.0	58.3	11.2	12.0	4.3
2	Elmore 32% Supplemental Dairy Ration	10.7	30.7	32.0	4.1	4.0	39.0	7.7	9.0	7.8
1	Elmore Test Ration	11.9	20.8	18.0	4.5	4.5	49.1	7.8	10.0	5.9
3	Elmore Turkey Finisher	11.3	18.1	17.0	4.7	4.0	52.3	6.0	8.0	7.6
1	Elmore Turkey Growing Mash Pellets	10.6	20.1	20.0	4.9	3.5	48.2	5.8	7.0	10.4
1	Elmore Turkey Starting Mash	10.1	23.8	21.0	6.2	4.0	44.1	5.6	6.0	9.9
1	Emco Feed	11.9	20.8	20.0	4.1	4.5	48.8	8.0	10.0	6.1
1	E-M-C-O Horse Feed	13.3	10.8	9.0	3.3	2.5	64.2	5.5	11.0	2.9
4	Granger 20% Dairy Ration	11.9	20.9	20.0	3.7	4.0	16.5	9.1	11.0	7.9
	John W. Eshelman & Sons									
3	Eshelman Conestoga 20 Dairy Feed	11.9	22.3	20.0	4.0	4.0	45.1	9.1	11.0	7.6
1	Eshelman Lancaster 60 Horse Feed	14.5	10.6	9.0	3.1	2.5	55.8	11.6	11.0	4.4
3	Eshelman Pennsy 16 Dairy Feed	11.5	19.0	16.0	4.3	3.0	47.1	9.6	11.0	8.5
1	Eshelman Pennsy Laying Mash	11.9	19.8	18.0	4.9	4.5	48.1	7.0	8.0	8.3
1	Eshelman Red Rose Broiler Ration	10.8	21.3	17.0	4.4	4.5	49.4	6.1	7.5	8.0
1	Eshelman Red Rose Calf Starter	10.0	24.2	22.0	5.4	5.0	51.4	3.0	4.0	6.0
1	Eshelman Red Rose Chick Grains	13.2	10.6	10.0	3.2	3.0	70.0	1.4	3.0	1.6
2	Eshelman Red Rose 24 Dairy Feed	11.7	26.1	24.0	4.3	4.0	42.8	8.0	11.0	6.8
2	Eshelman Red Rose 20 Dairy Feed	11.9	22.2	20.0	4.3	4.0	46.7	8.2	11.0	6.7
1	Eshelman Red Rose Fitting Ration	12.7	14.6	12.0	5.0	3.5	56.5	5.7	7.0	5.5
3	Eshelman Red Rose 85 Horse Feed	13.2	11.2	9.0	4.2	3.0	62.6	5.7	10.0	3.1
3	Eshelman Red Rose Laying Mash	10.6	22.9	20.0	5.6	5.0	45.8	6.5	7.5	8.6

1	Eshelman Red Rose 32 Mixing Ration	11.8	32.4	32.0	4.6	4.5	36.3	7.7	9.0	7.2
1	Eshelman Red Rose Stock Feed	10.1	10.6	9.0	4.2	3.0	58.7	10.9	12.0	5.5
1	Eshelman 8-O-8	11.2	14.0	11.0	2.8	2.0	51.3	13.7	15.0	7.0
	Evans Milling Co.									
2	Emco Hominy Feed	12.5	12.0	10.0	6.7	6.0	60.3	5.1	6.0	3.4
	Excelsior Milling Co.									
2	Camel Wheat Mixed Feed	11.1	15.4	15.0	4.2	4.0	56.7	7.3	8.5	5.3
	Farm Service Co.									
1	C Complete Starter & Broiler Ration	14.3	17.4	18.0	4.6	3.5	52.1	6.0	7.0	8.6
2	C Growing Mash	11.3	17.1	18.0	5.4	4.0	51.3	6.4	7.0	8.8
3	C Laying Mash	11.3	20.6	19.0	5.1	4.5	47.3	5.5	8.0	10.2
2	Diamond A Dairy Ration	9.7	27.2	24.0	4.4	4.0	43.3	7.8	8.0	7.6
4	Diamond C Dairy Feed	11.1	22.5	24.0	4.4	4.0	47.8	7.7	10.0	6.5
1	Farm Service All Mash Growing	11.3	16.2	14.0	4.1	3.0	56.3	5.4	5.0	6.7
1	Farm Service Chick Starter	11.0	19.7	18.0	5.0	4.0	51.2	4.3	6.0	8.8
1	Farm Service 24% Dairy Feed	11.2	25.7	24.0	4.4	4.0	44.4	7.2	11.0	7.1
2	Farm Service 20% Dairy Feed	11.5	23.0	20.0	4.8	3.5	46.3	8.0	10.0	6.4
2	Farm Service Fine Chick Feed	12.9	11.9	10.0	2.5	3.0	69.8	1.4	3.0	1.5
2	Farm Service 14% Fitting Ration	13.9	14.7	14.0	4.5	4.0	53.8	7.0	8.0	6.1
4	Farm Service Fleshing Pellets	12.2	17.4	15.0	4.8	3.75	52.9	5.9	7.0	6.8
1	Farm Service Goat Ration	14.1	16.5	15.0	2.5	4.0	52.0	7.9	9.0	7.0
5	Farm Service Horse Feed	13.1	10.8	8.0	3.6	2.0	61.1	7.9	9.0	3.5
2	Farm Service Laying Mash	11.3	22.2	20.0	5.1	5.0	45.0	6.2	7.0	10.2
1	Farm Service Starter & Broiler Ration	10.2	18.4	18.0	5.2	5.0	50.7	6.3	7.0	9.2
4	Farm Service Stock Feed	10.2	10.4	9.0	3.8	3.0	60.7	9.6	12.0	5.3
2	Lawrence Cow Ration	14.0	18.5	20.0	4.0	4.0	48.7	8.1	12.0	6.7
3	N. E. C. Laying Mash (1939 registration)	11.1	17.9	19.0	5.1	5.0	50.4	6.5	6.0	8.7
1	N. E. C. Laying Mash	13.0	17.9	16.0	4.9	3.75	50.3	5.5	8.0	8.4
	Farmers Feed Co., Buffalo, N. Y.									
1	Dried Brewers Grains	9.6	24.2	24.0	6.2	6.0	42.9	14.0	17.0	3.1
	Farmers Feed Co., New York, N. Y.									
5	"Bull Brand" Dried Brewers Grains	9.2	25.7	26.0	6.4	6.0	40.6	14.6	17.0	3.5
	Farmers Service Bureau									
1	Farmso Red Dog	9.4	18.0	15.0	2.8	3.0	65.7	2.0	4.0	2.1
	Federal Mill, Inc.									
1	Lucky Wheat Red Dog	11.1	16.6	15.0	3.4	2.5	63.4	2.4	4.0	3.1
	Ferneau Grain Co.									
1	F Corn Distillers Grains	8.3	29.3	28.0	10.3	9.0	38.9	11.4	14.0	1.8

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Finger Lakes & Hudson Flour Mills, Inc., Geneva, N. Y.									
1	Kangaroo Wheat Bran & Screenings	14.4	17.4	15.0	4.8	4.0	47.9	9.8	12.0	5.7
2	Kangaroo Red Dog	12.4	19.9	16.0	4.6	3.5	54.1	5.3	4.0	3.7
1	Kangaroo Standard Wheat Middlings, Screenings Mill Run	13.2	18.5	16.0	4.9	4.0	48.3	9.5	8.5	5.6
	Finger Lakes & Hudson Flour Mills, Inc., Troy, N. Y.									
1	Rye Feed	11.4	17.5	13.5	3.7	3.0	58.3	5.2	6.0	3.9
	First National Stores, Inc.									
1	Henfield Egg Mash	10.7	20.1	20.0	4.9	4.0	47.1	6.7	7.0	10.5
	Flory Milling Co., Inc.									
2	Blue Mountain Horse Feed	13.5	6.9	7.0	1.7	2.0	58.6	13.7	11.0	5.6
2	Flory's "All-Mash" Chick Starter	11.0	18.7	17.0	5.0	4.5	51.1	6.4	6.0	7.8
3	Flory's Complete Starter-Grower-Layer Mash	11.4	16.4	16.0	5.4	4.0	53.4	6.6	7.0	6.8
2	Flory's Horse Feed	13.9	10.6	9.0	2.8	2.5	62.4	7.0	10.0	3.3
2	Flory's 24% Special Dairy Feed	12.3	26.0	21.0	3.9	4.0	42.7	8.1	10.0	7.0
2	Flory's 20% Special Dairy Feed	13.1	21.9	20.0	3.6	4.0	47.6	7.7	11.0	6.1
2	Golden Egg Growing Mash	11.9	17.3	16.0	4.9	4.0	51.5	6.9	7.0	7.5
6	Golden Egg Laying Mash	10.4	21.7	20.0	5.6	4.0	46.8	7.0	7.0	8.5
2	Record Dairy Feed	12.9	21.8	20.0	4.0	4.0	46.9	7.7	9.0	6.7
2	Sunray Laying Mash	9.8	17.9	20.0	4.8	4.0	51.0	7.1	9.0	9.4
	J. A. Forrest Co.									
1	Bronco Fine Ground Feeding Oatmeal	11.8	15.2	14.5	3.5	4.0	63.0	4.2	3.75	2.3
	Fred A. Fountain, Inc.									
2	Fountain's B Starting and Broiler Ration	12.4	19.7	17.5	4.5	4.0	50.6	4.8	7.0	8.0
3	Fountain's Breeder Mash	11.9	20.1	18.0	4.8	4.5	48.9	4.6	6.0	9.7
2	Fountain's Growing Mash	12.2	18.2	16.0	5.0	4.0	51.9	4.9	7.0	7.8
2	Fountain's H Laying Mash	11.7	20.5	18.0	5.1	4.0	47.2	4.8	7.0	10.7

	Dean S. French									
1	Special Mash or Poultry Feed	11.9	19.1	20.0	4.7	4.0	48.6	7.7	8.0	8.0
	Paul Fuller & Sons									
2	Eggmaker	11.5	18.0	18.0	5.3	4.0	50.3	6.7	7.0	8.2
	Funk Bros. Seed Co.									
2	Funk's 41% Protein Soybean Oil Meal	11.7	42.9	41.0	5.9	4.5	29.1	4.9	7.0	5.5
	J. B. Garland & Son, Inc.									
1	Garland Chick Starter	10.1	17.9	17.0	5.3	3.5	53.8	4.7	5.0	8.2
1	Garland's Complete Starting & Broiler Ration (1939 registration)	10.8	18.6	17.0	5.0	3.5	50.7	5.5	5.5	9.4
1	Garland Complete Starting & Broiler Mash	12.6	18.9	17.0	5.1	3.5	48.8	5.8	6.0	8.8
3	Garland 24% Dairy Ration	12.1	26.0	24.0	4.9	4.0	42.5	6.8	10.0	7.7
2	Garland 20% Dairy Ration	12.3	22.5	20.0	4.9	4.0	46.6	7.1	10.0	6.6
3	Garland Growing Mash	11.8	17.2	11.0	5.7	3.0	52.1	5.9	7.0	7.3
3	Garland Horse Feed	13.5	11.6	10.0	3.7	3.0	62.4	5.8	9.0	3.0
2	Garland Laying Mash	11.7	20.3	18.0	5.4	3.0	47.5	6.1	7.0	9.0
2	Garland Stock Feed	9.7	9.5	8.5	5.2	4.0	58.6	11.0	12.0	6.0
2	Garland Turkey Starting & Broiler Mash	10.4	22.8	22.0	5.4	4.0	45.0	6.0	7.0	10.4
1	Royal Complete Laying Ration	11.3	15.7	15.0	6.0	1.0	53.9	5.4	6.0	7.7
1	Royal 24% Dairy Ration	10.1	25.9	21.0	5.0	4.0	43.5	7.7	11.0	7.8
3	Royal 20% Dairy Ration	11.8	21.9	20.0	4.9	4.0	45.4	8.6	11.0	7.4
2	Royal Dairy-Aide 20% Ration	13.3	20.5	20.0	3.6	3.5	46.0	9.3	11.0	7.3
3	Royal Laying Mash	11.2	19.0	18.0	5.2	3.0	49.1	6.7	8.0	8.8
2	Royal Worcester Complete Dairy Ration	12.9	20.0	20.0	3.9	3.0	47.3	8.6	10.0	7.3
	General Foods Corp.									
3	Burt's Hominy Feed	10.5	11.5	10.0	7.2	6.0	63.2	4.6	6.0	3.0
	General Mills, Inc.									
1	Washburn's Gold Medal Fancy Wheat Mixed Feed, Mill Run Screenings	11.9	16.9	15.0	4.8	3.5	56.3	5.8	7.5	4.3
2	Washburn's Gold Medal Hard Wheat Bran and Screenings	12.8	15.6	14.0	4.8	3.5	49.9	10.5	12.0	6.4
1	Washburn's Gold Medal Hard Wheat Standard Middlings and Wheat Screenings	11.8	16.7	15.0	5.0	1.0	53.7	8.1	9.5	4.7
	W. K. Gilmore & Sons, Inc.									
2	Conference Mash	11.1	18.9	16.0	4.8	4.0	45.4	6.9	6.5	12.9
2	Neponset Poultry Mash	10.8	21.2	20.0	5.2	3.0	43.0	5.8	10.0	14.0

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Glidden Co.									
1	Glidden 1 Hi New Process 44% Protein Soybean Oil Meal Diamond "G" Brand	10.7	45.5	44.0	0.6	0.5	31.6	6.1	7.0	5.5
2	Glidden 41% Protein Old Process Soybean Oil Meal Diamond "G" Brand	12.0	42.7	41.0	6.5	4.0	27.9	5.6	7.0	5.3
	Goode Grain Co.									
4	Goode Laying Mash, Mass. Formula	11.6	16.8	17.0	4.4	4.0	49.3	8.1	7.0	9.8
2	Goode Starting & Growing Mash, New England Formula	11.1	17.3	16.0	4.6	4.0	49.9	8.0	7.0	9.1
	Grand Isle County Co-operative Creamery Assn., Inc.									
1	Grand Isle Roller Process Dried Skim Milk Powder [8]	3.4	36.8	32.0	0.3	0.025	–	–	–	8.3
	Grand Union Co.									
2	Grand Union Laying Mash	11.4	20.9	20.0	5.1	4.0	47.0	6.0	8.0	9.6
	D. H. Grandin Milling Co.									
1	Grandin's Baby Chick Grains	13.5	11.2	10.0	2.6	2.5	69.9	1.4	5.0	1.4
2	Grandin's Broiler Mash	10.8	21.5	20.0	5.2	4.5	47.3	5.8	8.0	9.4
2	Grandin's 20 Dairy Feed	12.5	20.3	20.0	4.8	4.0	49.4	6.3	10.0	6.7
1	Grandin's Fleshing Pellets	12.5	14.8	15.0	4.2	4.5	55.4	5.1	6.5	8.0
2	Grandin's Green Feed	13.9	11.2	10.0	1.2	1.0	46.3	21.2	25.0	6.2
2	Grandin's Growing Mash	10.7	16.1	15.0	4.3	4.0	51.8	6.8	8.0	10.3
3	Grandin's Horse Feed	12.6	10.6	9.5	3.8	3.5	61.6	6.7	11.0	4.7
2	Grandin's Laying Mash	10.6	21.9	20.0	4.1	4.0	45.0	6.9	8.0	11.5
3	Grandin's Milk Maker	11.4	21.2	20.0	5.5	4.5	48.0	7.5	10.0	6.4
4	Grandin's Start-to-Finish Mash	11.3	17.9	16.0	4.3	4.0	51.6	6.9	7.0	8.0
1	Grandin's Stock Feed	10.1	9.6	9.0	4.0	4.0	61.3	9.8	12.0	5.2
3	Grandin's Turkey Grower	9.7	23.3	20.0	3.8	4.0	44.7	6.6	7.0	11.9
2	Grandin's Turkey Starter	10.2	27.4	24.0	4.7	4.0	40.4	5.3	7.0	12.0
3	Grandin's Twin Six Dairy Feed	11.6	23.1	22.0	5.7	4.5	45.6	7.5	10.0	6.5

2	M-S (Money Saver) 24 Dairy Feed	12.4	25.0	24.0	4.3	3.5	44.6	6.8	12.0	6.9
4	Money Saver 20 Dairy Feed	12.1	21.5	20.0	3.7	3.5	47.8	6.9	12.0	8.0
1	Money Saver Growing Mash	1[illegible].4	16.9	15.0	4.4	4.0	52.8	6.0	8.0	9.5
1	Money Saver Horse Feed	13.1	10.2	9.0	3.3	3.0	56.9	8.1	11.0	8.4
4	M-S (Money Saver) Laying Mash	10.7	20.8	18.0	3.8	4.9	47.6	6.7	8.0	10.4
	Great Atlantic & Pacific Tea Co.									
4	Daily Egg Laying Mash Feed	11.2	22.0	20.0	4.7	4.0	45.6	6.5	6.5	10.0
1	Daily Growth Chick Starter	10.8	16.7	16.5	5.8	4.5	54.4	4.7	4.5	7.6
1	Daily Growth Developing Feed	11.5	10.3	10.0	3.5	2.5	71.6	1.7	4.0	1.4
1	Daily Growth Fine Chick Feed	11.9	11.3	10.0	3.3	3.0	70.2	1.7	5.0	1.6
3	Daily Growth Growing Mash	10.9	18.7	17.5	4.6	4.0	49.7	6.1	6.5	9.7
1	Daily Horse Feed	13.5	11.3	9.5	3.6	3.0	60.6	7.1	10.0	3.9
2	Daily Milk Dairy Feed	12.1	17.1	16.0	4.0	3.0	45.6	10.6	12.0	10.3
2	Milky Way Dairy Feed 24%	13.3	23.7	21.0	3.3	3.5	43.6	7.8	9.0	8.3
4	Milky Way Dairy Feed 20%	12.8	21.6	20.0	3.8	3.5	46.4	7.3	9.0	8.1
	Hales & Hunter Co.									
3	Kingalea Horse Feed	13.5	10.1	9.0	3.4	2.5	61.8	6.6	10.0	4.3
1	Morning Glory Egg Mash	11.5	20.8	20.0	4.0	4.0	48.5	6.0	8.0	9.2
2	Red Comb All-Mash (1939 registration)	9.6	17.0	15.0	4.6	4.0	56.2	6.2	8.0	6.4
2	Red Comb All-Mash	12.1	17.0	15.0	4.5	4.0	53.8	5.3	7.0	7.3
3	Red Comb All-Mash Grower	11.[illegible]	16.6	14.0	4.6	4.0	54.2	5.8	7.0	6.9
1	Red Comb Balancer	9.6	28.4	26.0	4.7	5.0	36.0	6.7	8.0	14.6
3	Red Comb Batry Fed Grower	11.1	15.8	14.0	4.3	4.0	57.1	5.3	6.0	6.4
4	Red Comb Batry Fed Layer	11.2	16.2	15.0	4.4	4.0	56.0	4.5	6.0	7.7
4	Red Comb Broiler Mash	11.5	20.2	18.0	4.1	4.0	51.3	5.8	7.0	7.1
1	Red Comb Chick Starter	12.1	20.1	18.0	4.3	4.0	51.0	4.9	6.0	7.3
8	Red Comb Egg Mash	11.1	19.3	18.0	4.7	4.0	50.8	5.2	7.0	8.9
1	Red Comb Fine Chick Feed	12.7	10.7	10.0	3.1	2.5	70.7	1.4	4.0	1.4
1	Red Comb Flushing Mash	11.4	12.0	12.0	3.0	3.0	65.1	4.3	5.0	4.2
1	Red Comb Growing Mash	10.8	18.2	16.0	1.9	4.0	53.5	5.6	7.0	7.0
1	Red Comb Sup-Pel	8.8	19.5	19.0	6.3	5.0	50.3	7.5	11.0	7.6
1	Red Horn Calf Meal	9.5	20.1	18.0	3.8	3.0	55.7	4.8	5.0	6.1
1	Red Horn 20% Dairy Feed	12.1	22.5	20.0	4.1	4.0	45.8	7.5	10.0	7.4
3	Special Red Horn 20% Dairy Feed	12.3	22.6	20.0	3.4	3.5	45.1	8.6	12.0	8.0
	D. Harbeck & Sons									
2	Crusader All Purpose Mash	12.8	19.7	18.0	5.1	3.5	48.2	5.9	7.0	8.3
1	Special 1940 Mash	13.6	16.8	16.0	1.8	4.0	52.8	4.9	6.0	7.1
2	Welcome Dairy Feed	12.1	23.9	20.0	3.8	4.0	46.5	8.0	10.0	5.7
2	Welcome Growing Mash	12.5	18.5	16.0	5.2	4.0	49.0	5.2	7.0	9.6
2	Welcome Laying Mash	12.5	17.6	17.0	5.2	4.0	51.4	5.7	7.0	7.6
2	Welcome Starter & Broiler Ration	13.3	18.1	18.0	5.2	4.0	52.5	4.1	7.0	6.8

[8] Lactose 51.2

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	D. B. Hodgkins' Sons									
1	Hodgkins' Dairy Ration	10.9	21.0	20.0	4.4	4.0	47.9	7.9	10.0	7.9
1	Hodgkins' Growing Mash	11.6	18.7	17.0	5.0	3.5	52.3	5.8	10.0	6.6
1	Hodgkins' Poultry Mash	10.9	18.7	18.0	5.5	5.0	50.8	6.3	8.0	7.8
	Hood Mills Co.									
5	Fine Ground Feeding Oatmeal	11.7	16.2	14.0	5.3	5.0	58.9	3.5	4.0	4.4
	Horvitz Grain Co.									
2	Mak-M-Lay Laying Mash	12.0	18.5	20.0	4.9	5.0	50.1	7.2	9.0	7.3
2	Wantmore Dairy Ration	11.3	23.0	20.0	4.9	4.0	46.2	8.1	10.0	6.5
2	Wantmore Dairy Ration with Beet Pulp	11.7	20.5	20.0	4.4	4.0	47.8	9.5	10.0	6.1
2	Wantmore 24% Sweetened Special Dairy Feed	10.8	25.3	24.0	4.3	4.0	39.7	12.3	13.0	7.6
2	Wantmore 20% Sweetened Special Dairy Feed	11.1	22.6	20.0	4.0	4.0	42.5	12.4	13.0	7.1
	Hubinger Co.									
1	Ke OK uk Corn Gluten Feed	11.2	26.7	25.0	2.9	2.0	48.3	6.5	8.5	4.4
	Humphreys-Godwin Co.									
3	Dixie Brand Prime 41% Protein Cottonseed Meal	8.0	41.2	41.0	6.3	5.0	27.6	10.7	12.0	6.2
	Independent Tallow Co.									
3	Eggaday Brand 50% Meat and Bone Scrap [9]	7.4	49.0	50.0	11.3	6.0	–	–	–	28.1
	International Milling Co.									
1	Blackhawk Pure Wheat Bran	13.2	16.4	15.0	4.8	3.2	48.5	10.6	12.0	6.5
1	Blackhawk Wheat Red Dog	11.7	20.6	16.0	4.5	3.5	57.2	3.7	4.0	2.9
	Ismert-Hincke Milling Co.									
3	Oracle Pure Wheat Bran	12.4	16.7	16.0	4.2	3.5	50.1	10.1	11.0	6.5
	Jaquith & Co.									
2	Dairy Ration	12.5	21.1	20.0	4.4	4.0	47.4	7.6	8.0	7.0
2	Growing Mash	11.0	17.0	16.0	4.8	5.0	52.7	6.7	6.0	7.8

2	Horse Feed	12.8	13.5	12.0	3.6	3.5	60.2	5.5	7.0	4.4
2	Laying Mash	10.7	19.5	17.0	5.2	4.0	48.0	7.9	8.0	8.7
2	Starting Feed	11.4	15.7	14.0	5.1	5.0	54.0	6.6	4.0	7.2
	Kansas Flour Mills Corp.									
1	Big Flake Pure Wheat Bran	12.8	17.2	15.0	4.2	3.5	50.0	9.6	11.0	6.2
	Kasco Mills, Inc.									
2	Apex Complete Grower	12.8	15.4	14.0	4.5	4.0	55.3	6.2	8.5	5.8
2	Apex 20% Dairy Ration	12.0	19.7	20.0	3.9	3.5	43.7	11.7	12.0	9.0
2	Apex Growing Mash	11.9	19.1	17.0	4.2	4.0	51.9	6.5	8.5	6.4
4	Apex Laying Mash	11.1	21.1	20.0	4.4	4.0	50.5	5.8	8.5	7.1
2	Apex Starter	11.8	18.4	16.0	4.9	4.0	52.9	5.3	7.0	6.7
5	Beatsall Milk Grains	13.1	23.6	22.0	4.1	4.0	45.5	6.9	10.0	6.8
1	Kasco All Mash Chick Starter	12.7	21.1	17.0	4.7	4.0	48.6	5.6	6.0	7.3
2	Kasco All Mash Laying & Breeding Ration	12.1	17.8	15.0	4.9	4.0	53.1	5.4	6.5	6.4
3	Kasco Body Builder	11.6	17.1	15.0	4.5	4.0	54.0	5.3	7.0	7.5
4	Kasco Broiler Ration	11.6	21.0	18.0	4.5	4.0	50.6	5.8	6.5	6.5
1	Kasco Complete Rabbit Ration	11.2	14.5	12.0	3.0	2.0	51.6	11.8	15.0	7.9
2	Kasco Egg Producer	12.8	20.9	20.0	4.4	4.0	47.2	5.8	7.5	8.9
4	Kasco Fitting Ration	11.3	15.6	14.0	3.7	4.0	54.6	5.7	8.0	6.1
1	Kasco Growing Grains	12.6	10.2	9.0	4.2	2.5	69.4	2.0	4.0	1.6
4	Kasco Horse Feed	13.4	10.8	9.0	3.3	3.0	60.1	7.2	12.0	5.2
1	Kasco Laying & Breeding Mash	10.9	20.8	20.0	4.8	4.0	49.9	6.8	7.5	7.8
1	Kasco 20% Milk Maker	13.6	21.3	20.0	4.4	4.0	46.5	7.2	10.0	7.0
3	Kasco Open Formula 20% Dairy Ration	12.2	21.2	20.0	4.0	3.5	47.9	7.4	10.0	7.3
2	Kasco Pig Hog Feed	11.9	18.8	17.0	4.9	4.0	51.8	6.5	8.0	6.1
1	Kasco Poultry Flushing Mash	10.7	18.4	17.0	3.7	3.5	54.1	5.1	6.0	8.0
2	Kasco Sweet 16% Dairy Feed	11.9	18.4	16.0	3.7	3.5	48.0	10.1	12.0	7.9
2	Kasco Turkey Grower	11.0	23.1	20.0	4.4	4.0	48.4	6.8	8.0	6.3
1	Kasco Turkey Starter	10.6	26.7	24.0	4.9	4.0	41.8	6.7	8.0	9.3
	Kellogg Co.									
2	Kellogg's Hominy Feed	10.0	10.3	10.0	6.1	6.0	67.5	3.7	5.0	2.4
	Spencer Kellogg & Sons, Inc.									
2	Kellogg's 37% Protein Old Process Linseed Meal	11.9	38.5	37.0	4.6	4.5	31.7	6.9	9.0	6.4
3	Kellogg's 41% Protein Old Process Soybean Oil Meal	11.8	43.7	41.0	4.7	4.0	28.7	5.5	7.0	5.7
	H. H. King Flour Mills Co.									
2	Fancy "Brodflake" (Wheat Bran and Ground Wheat Screenings)	13.2	17.5	14.5	4.7	3.5	48.7	9.5	11.0	6.4
	Chas. A. Krause Milling Co.									
2	Badger White Hominy Feed	12.0	11.2	10.0	6.8	6.0	62.0	4.9	5.0	3.1

[9] Phosphoric acid 10.8

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Lake of the Woods Milling Co., Ltd.									
1	Lakewoods Wheat Bran	11.0	16.8	15.0	5.0	3.5	48.8	9.8	11.5	5.6
	Larrowe Milling Co.									
4	Dried Beet Pulp	11.1	8.9	7.0	0.6	0.3	57.0	19.5	22.5	2.9
1	Larro 41% Cottonseed Meal	9.2	41.0	41.0	6.0	6.0	27.4	9.8	10.0	6.6
3	Larro the Ready Ration for Dairy Cows	11.3	21.2	20.0	4.2	3.75	48.0	9.1	12.0	6.2
1	Larro Broiler Feed	9.7	21.5	20.0	4.9	3.5	50.5	5.8	7.0	7.6
1	Larro Calf Builder	10.6	25.1	25.0	3.7	4.0	51.2	3.8	4.5	5.6
2	Larro Chick Builder	10.6	20.2	19.0	4.7	4.0	49.3	5.9	7.0	9.3
1	Larro Chick Grains	13.3	10.9	10.0	2.8	2.0	69.9	1.6	4.0	1.5
4	Larro 16 Dairy Feed	11.7	17.0	16.0	3.8	3.0	52.4	9.7	11.0	7.4
2	Larro Egg Mash	10.3	21.0	20.0	5.1	4.0	49.1	6.2	7.5	8.3
1	Larro Growing Grains	12.6	10.5	10.0	2.9	2.0	70.7	1.8	4.0	1.5
1	Larro Turkey Builder	9.5	25.1	24.0	5.1	4.5	42.8	5.8	6.5	11.7
1	Larro Turkey Finisher	10.6	20.3	19.0	4.7	3.5	47.8	6.5	7.0	10.1
	Sheldon Lattin									
2	Corn Distillers Dried Grains	5.7	26.7	28.0	10.0	8.0	42.1	13.7	13.0	1.8
	L. B. Lovitt & Co.									
5	"Lovit Brand" 41% Protein Cottonseed Meal	8.2	41.5	41.0	6.1	5.0	27.9	10.2	13.0	6.1
	Maine Fish Meal Co.									
2	Maine Vitamin D Fish Meal [10]	9.7	55.3	55.0	14.9	10.0	–	–	–	19.3
	Mansfield Coal & Grain Co.									
2	Manco 20% Dairy Feed	12.2	21.1	20.0	4.2	4.3	48.4	7.7	7.5	6.4
1	Manco Laying Mash	11.4	21.6	20.0	5.8	5.0	46.2	5.9	5.3	9.1
	Mansfield Milling Co.									
2	Mansfield Chick-Growing Mash	11.3	18.5	17.0	5.3	4.0	50.3	6.5	8.0	8.1
2	Mansfield Chick Starter	11.4	18.3	17.0	5.3	3.5	49.3	6.7	6.5	9.0
2	Mansfield Dry Poultry Mash	10.8	20.5	20.0	5.5	5.0	46.5	6.4	7.0	10.3
2	Mansfield Sweetened "20" Dairy Ration	13.8	20.8	20.0	4.3	4.0	46.9	7.4	8.5	6.8

	Maple Leaf Milling Co., Ltd.									
1	Rex Wheat Bran with Ground Screenings not Exceeding Mill Run	13.7	17.0	15.0	4.9	3.5	50.8	8.6	12.0	5.0
1	Rex Wheat Middlings with Ground Screenings not Exceeding Mill Run	11.8	15.1	16.0	5.1	5.0	55.5	8.1	9.0	4.4
	Maritime Milling Co., Inc.									
1	B-B Broiler Ration Vitamized	11.2	19.6	20.0	4.6	4.0	51.7	5.7	7.0	7.2
1	B-B Chick Feed	14.3	10.9	10.0	2.1	2.0	70.0	1.5	4.0	1.2
2	B-B Complete Chick Starter Ration Vitamized	11.6	19.8	20.0	4.9	4.0	51.5	5.1	6.0	8.0
2	Sweetened B-B Bull Brand "20" Dairy Ration	13.5	20.1	20.0	4.3	4.0	48.9	7.6	9.0	5.6
1	B-B Bull Brand 16% Dairy Ration (Sweetened)	11.9	16.1	16.0	4.4	4.0	56.4	6.6	9.0	4.6
1	B-B Bull Brand Dry and Fresh Cow Fitting Ration	16.0	12.9	13.0	3.3	4.0	53.1	8.4	9.0	6.3
1	B-B Fattening Mash	10.7	17.1	13.0	5.2	4.0	54.8	6.5	6.0	5.7
1	B-B Flushing and Conditioning Mash	12.3	15.8	14.0	4.5	2.5	57.1	3.3	4.0	7.0
1	B-B Growing Mash Vitamized	11.7	17.6	15.0	4.8	4.0	53.3	5.7	8.0	6.9
2	B-B Bull Brand Horse Feed	12.8	11.0	8.0	3.4	2.0	60.1	7.8	10.0	4.9
2	B-B Layer and Breeder Mash Vitamized	11.7	18.1	20.0	5.0	4.5	49.1	6.3	7.0	9.8
1	B-B Bull Brand Stock Feed Sweetened	11.6	12.0	9.0	4.8	3.5	57.7	9.8	12.0	4.1
1	B-B Turkey Developer and Finishing Mash	11.3	18.0	18.0	5.2	4.0	51.8	6.4	8.0	7.3
1	Daisy Egg Mash	12.0	20.5	20.0	4.5	3.5	45.2	7.2	9.0	10.6
3	Daisy Horse Feed	13.1	11.6	6.5	3.6	1.5	56.2	9.2	12.0	6.3
2	Hi-Test Dairy Feed 24% Pro. Sweetened	12.3	25.0	24.0	4.2	4.0	42.6	9.0	12.0	6.9
4	Hi-Test Dairy Feed 20% Pro. Sweetened	12.9	20.9	20.0	4.3	4.0	45.2	9.6	12.0	7.1
3	Marmico 16% Protein Dairy Feed	13.5	17.3	16.0	3.8	4.0	47.4	10.5	12.0	7.5
	Middlesex County Farm Bureau Association									
5	Farm Bureau All Mash Developer	11.3	16.8	11.5	4.7	3.5	54.3	6.1	6.0	6.8
4	Farm Bureau All Mash Laying	11.2	17.7	15.0	4.8	4.0	55.9	4.8	6.5	5.6
1	Farm Bureau Battery Mash	11.4	19.3	16.0	5.0	4.0	50.1	6.2	6.0	8.0
4	Farm Bureau Breeder & Laying Mash 20%	10.5	20.5	20.0	5.1	4.0	49.6	5.7	6.0	8.6
1	Farm Bureau Complete Laying Mash	13.0	15.5	15.0	4.5	4.0	56.5	5.4	5.5	5.1
2	Farm Bureau Conditioner & Fattener Mash Pelleted	11.9	16.2	11.5	5.0	4.0	57.7	5.2	5.0	4.0
3	Farm Bureau Dairy Ration 24%	11.4	21.4	21.0	5.4	4.5	45.1	7.7	9.0	6.0
3	Farm Bureau Dairy Ration 20%	11.4	20.3	20.0	4.6	4.5	50.3	7.2	8.5	6.2
3	Farm Bureau Dairy Ration 16%	12.1	18.6	16.0	4.5	4.0	51.4	7.0	8.0	6.4
3	Farm Bureau Dairy Ration 12%	12.0	15.1	12.0	4.6	4.5	54.3	8.0	8.0	6.0
1	Farm Bureau 12% Dairy Ration	12.7	15.0	12.0	4.8	4.5	53.3	7.6	9.0	6.6
3	Farm Bureau Developer	11.5	19.2	18.5	4.9	4.0	51.6	5.9	6.5	6.9
2	Farm Bureau Flushing Mash	10.3	21.2	20.5	3.8	4.0	53.8	3.6	3.0	7.3
3	Farm Bureau Horse Feed	12.8	11.0	10.5	3.7	3.5	65.2	4.6	7.5	2.7
3	Farm Bureau Laying Mash	10.7	20.7	20.0	5.2	4.0	48.1	6.2	6.5	9.1
4	Farm Bureau Laying Mash 17%	11.5	19.2	17.0	5.4	4.0	50.4	5.5	6.5	8.0

[10] Phosphoric acid 5.6

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Middlesex County Farm Bureau Association — Concluded									
4	Farm Bureau Starter & Broiler	11.0	20.1	18.0	4.9	4.0	51.1	5.5	5.0	7.4
1	Farm Bureau Turkey Breeder Mash	10.8	20.3	21.0	4.8	1.0	52.2	5.1	6.0	6.8
6	Farm Bureau Turkey Fattener	10.8	20.2	18.0	5.1	4.0	51.2	5.5	6.0	7.2
4	Farm Bureau Turkey Growing Ration	10.9	20.0	20.0	5.2	4.0	51.2	5.8	5.5	6.9
3	Farm Bureau Turkey Starter	10.2	22.9	21.0	5.1	5.5	47.2	5.1	5.5	9.5
	Miner-Hillard Milling Co.									
1	Choice Steam Cooked Hominy Feed	11.5	10.3	10.0	6.0	5.0	66.2	3.4	5.0	2.6
	Mississippi Valley Grain & Feed Co.									
2	Kent Cottonseed Meal	8.0	40.6	41.0	6.4	5.5	28.9	9.5	12.0	6.6
	Geo. Q. Moon & Co., Inc.									
1	Crescent Growing Mash	11.8	15.7	15.0	3.6	4.0	49.1	9.5	9.5	10.3
5	Crescent Laying Mash	11.2	17.9	18.0	4.2	4.0	46.2	9.1	10.0	11.4
1	Moon's Baby Chick Grains	13.0	11.9	10.0	2.1	3.0	70.8	1.1	2.5	1.1
2	Moon's Complete Growing Mash	11.5	18.3	16.0	5.4	4.0	49.3	7.5	7.0	8.0
2	Moon's Complete Laying Mash	12.2	18.6	17.0	4.9	4.0	48.2	6.6	7.0	9.5
3	Moon's Complete Starter & Broiler Mash	11.5	18.6	18.5	4.7	4.0	50.3	7.0	5.0	7.9
6	Moon's 24% Dairy Ration	12.6	25.3	24.0	3.7	4.0	42.4	7.7	10.0	8.3
2	Moon's Developing Grains	12.6	10.0	10.0	3.2	2.0	71.1	1.6	5.0	1.5
1	Moon's Fattener Mash	10.6	14.3	14.0	5.2	4.0	59.0	6.2	6.0	4.7
4	Moon's 90 Horse Feed	13.8	10.8	9.0	3.2	3.0	63.0	6.0	10.0	3.2
1	Moon's Laying Mash	12.3	19.6	20.0	4.8	4.0	48.3	6.8	9.0	8.2
1	Moon's Stock Feed	10.0	11.7	9.0	5.2	3.0	55.9	11.9	12.0	5.3
1	Moon's Turkey Growing Mash	10.7	20.4	20.0	5.6	4.5	48.2	7.0	6.5	8.1
1	Moon's Turkey Starting Mash	10.4	22.9	25.0	4.4	4.5	46.7	7.5	6.5	8.1
3	Open Formula Dairy Ration	12.7	21.1	20.0	4.7	4.5	47.4	7.5	8.0	6.6
3	Special A Dairy 20% Ration	13.4	23.0	20.0	3.8	4.0	45.5	7.0	10.0	7.3
2	U. S. 24% Dairy Ration	12.9	21.7	24.0	3.7	3.0	45.1	8.8	12.0	7.8
5	U. S. 20% Dairy Ration	11.6	20.2	20.0	4.1	4.0	45.8	11.2	12.0	7.1

	Jas. F. Morse & Co.									
2	Morse's 50% Meat Scraps [11]	6.7	50.1	50.0	10.2	8.0	–	–	–	30.4
1	Morse's 45% Meat Scraps [12]	6.2	46.2	45.0	12.1	8.0	–	–	–	30.7
	National Distillers Products Corp.									
1	Produlac Brand Dried Corn Distillers Grains	6.2	28.0	27.0	8.8	8.0	45.5	7.4	9.0	4.1
	Neumond Co.									
1	Neumond's 20% Dehydrated Alfalfa Lea Meal	7.1	16.6	20.0	3.0	2.5	38.3	13.7	18.0	21.3
2	Neum nd 28% Corn Distillers Grains	7.9	27.9	28.0	8.5	7.0	41.0	12.9	15.0	1.8
	New England Dairies, Inc.									
2	New England Dairies Skim Milk Powder [1]	2.1	36.6	32.0	0.8	0.025	–	–	–	8.5
	New England Grain Co.									
2	New England Broiler Ration	11.8	18.6	15.0	5.5	5.0	52.8	5.1	6.0	6.2
5	New England Economy 20% Dairy Feed	10.5	22.0	20.0	4.0	4.0	42.5	13.8	10.5	7.2
1	New England Economy Laying Mash	11.6	20.5	20.0	6.1	5.0	47.3	5.2	8.0	9.3
2	New England Economy Starter & Growing Feed	11.8	17.7	18.0	5.4	5.0	52.3	5.6	8.0	7.2
3	New England Egg Mash	11.1	19.1	20.0	5.6	5.0	51.0	4.6	7.0	7.6
2	New England Fitting Ration	11.0	16.8	14.0	4.7	4.0	53.6	7.4	7.0	6.5
1	New England Intermediate Chick Feed	13.4	10.1	10.0	3.9	1.5	69.3	1.7	5.0	1.6
2	New England Open Formula 20% Dairy Feed	10.8	22.8	20.0	4.7	5.0	46.7	8.1	8.5	6.9
3	New England Pig and Hog Ration	11.5	17.8	15.0	5.4	5.0	52.6	5.7	10.0	7.0
1	New England Stock Feed	11.0	11.8	9.0	4.2	4.0	55.6	11.6	9.5	5.8
2	New England Sweetened Horse Feed	12.8	11.8	9.0	3.9	3.5	61.0	6.1	9.0	4.4
2	New England Sweetened Stock Feed	11.6	10.2	9.0	4.1	4.0	57.2	11.5	10.0	5.4
2	New England Turkey Grower	10.7	21.7	20.0	5.2	4.5	48.6	5.8	5.0	8.0
3	3 in 1 Mash Starting, Growing and Laying	11.5	18.5	17.0	5.4	5.0	53.6	4.8	6.0	6.2
	New England Rendering Co.									
1	Boston Pure Cod & Haddock Meal [14]	6.8	66.9	62.0	5.4	3.0	–	–	–	22.4
	New England Retail Grain Dealers Cooperative Assn., Inc.									
1	New England Quality Chick Starter	10.3	18.5	17.5	4.4	4.0	49.2	6.4	7.0	11.2
1	New England Quality Complete Laying Mash	11.6	19.6	17.0	5.2	4.0	49.1	5.9	7.0	8.6
2	New England Quality 20% Dairy Feed	14.2	19.2	20.0	4.2	4.0	46.9	8.8	9.0	6.7
1	New England Quality 16% Dairy Feed	12.7	18.9	16.0	3.9	4.0	49.8	8.8	12.0	5.9
2	New England Quality Horse Feed	13.9	10.9	10.0	3.2	3.0	63.7	5.3	9.0	3.0
1	New England Quality Laying Mash	11.1	18.5	20.0	4.3	4.0	50.7	5.8	7.0	9.6
2	New England Yankee 20% Dairy Ration	13.6	19.1	20.0	3.8	3.5	48.9	8.3	9.0	6.3
2	New England Yankee Egg Mash	11.9	19.8	18.0	4.8	4.0	50.6	6.1	8.0	6.8
2	New England Yankee Growing Mash	11.7	20.8	17.0	4.8	4.0	49.2	5.9	8.0	7.6
1	New England Yankee Stock Feed	11.3	16.4	10.0	4.4	3.0	54.4	6.8	9.0	6.7

[11] Phosphoric acid 11.6 [12] Phosphoric acid 12.5 [13] Lactose 52.0 [14] Phosphoric acid 9.1

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	North East Feed Mill Co.									
1	North East Quality Feeding Oat Meal	10.6	15.4	15.0	1.2	1.0	64.9	2.9	3.75	2.0
	Ogden Grain Co.									
1	"Biddy" Laying Mash	11.1	20.7	20.0	4.9	4.0	48.1	6.4	7.0	8.8
4	Cloverbloom 24% Dairy Feed	12.3	24.0	24.0	3.5	3.0	45.2	8.1	11.0	6.6
2	Cloverbloom 20% Dairy Feed	12.5	20.1	20.0	3.6	3.0	48.0	8.7	12.0	7.1
2	Pilgrim "Cackle" 20% Layer-Breeder	11.9	20.4	20.0	5.0	4.0	49.2	5.7	8.0	7.8
1	Pilgrim Fitting Ration	13.7	12.5	12.5	4.2	3.5	56.3	5.9	7.0	7.4
2	Pilgrim Growing Mash	11.6	16.8	16.0	5.7	4.0	51.9	6.1	8.0	7.9
2	Pilgrim Horse Feed	13.1	11.1	10.0	3.3	4.0	62.9	6.4	9.0	3.2
1	Pilgrimilk Laying Mash	11.6	19.6	20.0	4.4	4.0	50.3	5.6	7.0	8.5
5	Pilgrim Special Laying Mash	12.2	18.4	18.0	1.5	4.0	50.9	6.0	7.0	8.0
2	Pilgrim Starter and Broiler Ration	11.6	19.6	18.0	4.7	4.0	49.8	5.0	6.0	9.3
6	Thrift 20% Dairy Feed	12.6	20.7	20.0	3.8	3.25	49.6	6.4	8.5	6.9
1	Thrift 16% Dairy Feed	12.5	19.1	16.0	4.4	3.0	50.2	7.9	10.0	5.9
	Ogilvie Flour Mills Co., Ltd.									
2	Ogilvie Wheat Bran	13.4	16.5	15.0	5.1	3.5	48.2	11.0	11.5	5.8
	Old Fort Mills, Inc.									
2	Old Fort Soybean Oil Meal	8.5	41.6	41.0	5.4	5.0	31.5	7.3	7.0	5.7
	Paetow Co.									
1	Malt Sprouts	5.9	30.5	24.0	1.3	1.0	46.7	8.8	16.0	6.8
	Park & Pollard Co.									
2	Bidwell 20% Dairy Ration	11.8	20.9	20.0	3.7	3.5	44.2	10.1	12.0	9.3
1	Bidwell Laying Mash	11.2	19.9	18.0	3.4	3.0	49.4	7.0	8.0	9.1
3	Doublex 24% Dairy Ration	11.9	24.6	24.0	3.7	3.5	41.6	9.2	11.0	9.0
4	Doublex 20% Dairy Ration	11.9	20.9	20.0	3.6	3.5	44.5	10.4	11.0	8.7
2	Doublex 16% Dairy Ration	11.0	17.5	16.0	3.8	3.5	47.9	10.5	12.0	9.3
2	Go-Tu-It Pig & Hog Ration	10.6	16.6	15.0	4.1	3.0	51.6	6.7	8.0	10.4

2	Hi-Valu Scratch Feed (Pelleted)	12.6	12.2	11.5	3.9	2.5	59.3	6.0	8.0	6.0
3	Lay or Bust Dry Mash	10.8	21.7	20.0	4.5	3.0	48.3	6.4	7.0	8.3
1	Manamar Doublex 20% Dairy Ration	12.0	19.6	20.0	3.7	3.5	45.5	9.7	11.0	9.5
2	Manamar Life Cycle Mash	10.8	18.3	16.0	4.5	3.5	49.9	6.3	7.0	10.2
4	Milkmaid 24% Sweetened Dairy Ration	11.6	24.6	24.0	4.4	4.0	44.0	7.7	10.0	7.7
3	Milkmaid 20% Dairy Ration	12.0	19.7	20.0	4.4	4.0	49.6	7.3	10.0	7.0
2	Park & Pollard Breeder Mash	10.9	21.3	20.0	4.0	4.5	49.2	6.1	7.0	8.5
2	Park & Pollard Fleshing Pellets	13.0	19.7	16.0	4.3	4.0	50.1	6.4	7.0	6.5
3	Park & Pollard Growing Feed	11.4	18.2	16.0	4.7	3.0	52.4	6.0	7.0	7.3
2	Park & Pollard Manamar Fitting Ration	13.5	12.9	12.0	3.3	3.5	57.8	6.2	7.0	6.3
3	Park & Pollard Starter & Broiler Mash	10.5	19.7	18.0	4.3	4.0	51.8	5.3	6.0	8.4
1	Park & Pollard Turkey Grower	11.6	19.5	20.0	4.5	4.0	49.9	5.4	7.0	9.1
2	Yankee Horse Feed	13.1	11.8	10.0	3.7	3.5	62.3	6.2	9.0	2.9
	George H. Parker Grain Co.									
2	Parker's Egg Mash	11.3	18.1	18.0	5.7	5.0	48.3	6.8	7.0	9.5
2	Parker's Growing Mash	11.3	17.3	17.0	5.5	4.5	52.0	6.0	6.0	7.9
2	Parker's Special Dairy Ration	11.3	21.4	19.0	4.5	4.0	44.9	9.5	12.0	8.4
2	Parker's Starter & Broiler Mash	10.8	19.7	17.5	5.9	4.0	48.7	5.8	7.0	9.1
	Parrish & Heimbecker, Ltd.									
1	Pure Wheat Bran	17.5	15.6	15.0	4.7	3.5	18.2	9.3	11.5	4.7
2	Parrheim Pure Wheat Shorts	14.3	16.1	16.0	5.0	5.0	55.6	5.6	8.0	3.4
	Pecos Valley Alfalfa Mill Co.									
2	Peevee Alfalfa Leaf Meal	8.5	22.7	20.0	2.9	2.5	37.5	17.3	18.0	11.1
	Penick & Ford Ltd., Inc.									
2	Douglas Corn Gluten Feed	10.5	28.5	25.0	1.8	1.5	45.7	7.4	8.5	6.1
1	Douglas Corn Gluten Meal	10.2	41.4	41.0	2.0	1.5	36.0	5.5	6.0	4.9
	Perkins Oil Co.									
1	Golden Rod Brand Cottonseed Meal	7.6	40.9	41.0	6.0	5.0	28.7	10.4	12.0	6.1
	Pillsbury Flour Mills Co.									
1	Pillsbury's Hard Wheat Standard B Middlings with Screenings not Exceeding Mill Run	11.7	17.7	15.0	5.5	4.0	51.7	8.3	9.5	5.1
1	Pillsbury's Fancy Wheat Mixed Feed with Screenings	11.9	17.6	15.0	4.7	4.0	56.2	5.6	8.5	4.0
	Maurice Pincoffs Co.									
1	41% Protein Cottonseed Meal	8.5	41.3	41.0	6.3	5.0	27.7	10.6	14.0	5.6
	R. C. Pratt									
2	Ruler Brand Pure Wheat Bran	12.6	17.2	15.0	4.9	3.5	51.7	8.6	11.5	5.0
3	Ruler Brand Pure Wheat Shorts	13.0	18.4	15.0	5.6	3.5	52.3	6.9	10.5	3.8

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	H. C. Puffer Co.									
2	Egg-Em-On Growing Mash	11.1	19.4	18.0	4.4	4.0	50.1	6.0	7.0	9.0
2	Egg-Em-On Laying Mash	11.4	21.9	20.0	4.8	4.0	45.0	6.1	9.0	10.8
1	Egg-Em-On Starter & Broiler	11.7	19.4	18.0	4.5	4.0	50.7	5.6	5.5	8.2
2	Producer Dairy Feed	11.4	22.0	20.0	4.8	3.5	46.8	7.4	10.0	7.6
2	Sweetened Producer Dairy Feed	13.0	19.4	20.0	3.5	3.5	43.8	12.0	12.5	8.3
1	Puffer's 75% Horse Feed	17.9	10.6	10.0	2.9	3.5	58.6	4.9	9.0	5.1
	Quaker Oats Co.									
2	Bell Cow Wheat Bran	14.4	16.1	15.0	5.0	3.5	50.7	8.8	10.0	5.0
2	Bell Cow Wheat Shorts	12.7	18.0	15.0	5.4	4.0	53.7	6.1	8.0	3.8
3	Big Egg Laying Mash	11.1	20.8	20.0	5.3	4.0	49.5	7.2	8.0	6.1
1	Ful-O-Pep Broiler Mash	11.8	20.7	19.0	4.9	4.5	51.2	5.0	7.0	6.4
1	Ful-O-Pep Chick Starter	10.5	18.9	17.0	5.3	4.5	53.4	5.1	7.0	6.8
4	Ful-O-Pep Egg Breeder Mash	11.7	21.6	20.0	6.3	4.5	46.0	5.5	8.0	8.9
1	Ful-O-Pep Fine Chick Feed	12.7	10.3	11.0	3.1	2.5	70.6	1.8	2.0	1.5
1	Ful-O-Pep Growing Mash	10.9	19.7	19.0	5.5	5.0	52.2	4.8	7.0	6.9
1	Peterborough Oat Feed	6.8	4.5	4.0	1.6	1.5	52.2	29.4	32.0	5.5
4	Quaker 24% Protein Dairy Ration	10.8	23.6	24.0	3.8	3.75	42.8	10.9	12.0	8.1
3	Quaker 20% Protein Dairy Ration	10.1	20.0	20.0	4.2	4.0	46.8	10.0	12.0	8.9
1	Quaker 16% Protein Dairy Ration	9.9	16.3	16.0	4.0	3.75	51.0	11.4	12.0	7.4
2	Quaker Green Cross Horse Feed	12.8	11.1	10.0	3.2	2.5	56.4	11.0	12.0	5.5
2	Quaker Pig-N-Hog Feed	10.1	19.5	16.0	5.1	3.5	51.4	5.3	10.0	8.6
1	Quaker Sugared Schumacher Feed	9.9	10.8	10.0	3.9	3.0	58.2	10.7	12.0	6.5
1	Quaker Thorobred Horse Feed	13.2	9.9	10.5	3.1	3.5	65.8	4.8	8.0	3.2
3	Sugared Vim Oat Mill Feed	8.1	5.0	4.5	1.6	1.25	52.7	26.5	27.5	6.1
1	Yellow Hominy Feed	11.5	11.2	10.0	6.2	5.0	64.2	4.3	5.0	2.6
	Ralston Purina Co.									
2	Protena 20% Dairy Feed	11.9	21.9	20.0	3.8	3.5	45.1	9.1	12.0	8.2
2	Purina Breeder Lay Chow	10.9	22.8	21.0	5.2	4.0	43.3	6.5	8.0	11.3
1	Purina Broiler Chow	11.2	21.1	18.0	4.7	3.5	50.8	5.9	7.0	6.3
1	Purina Bulky Las Chow (Buffalo Mill)	14.7	12.9	9.0	2.3	1.3	50.4	11.8	15.0	7.9
2	Purina Bulky Omolene (Buffalo Mill)	12.8	12.3	10.0	3.7	3.2	57.1	9.2	11.0	4.9
2	Purina Calf Startena	13.3	21.2	19.5	3.1	3.0	47.6	8.1	9.5	6.7

4	Purina Chick Growena	12.3	16.8	15.0	4.7	3.5	55.6	5.2	7.0	5.4
1	Purina Chick Startena	10.8	21.4	18.0	5.3	4.0	51.2	4.5	7.0	6.8
1	Purina Complete Sow and Pig Chow Ration	11.9	15.6	15.0	4.0	3.0	59.4	4.4	6.0	4.7
1	Purina 24% Cow Chow	12.2	26.9	24.0	5.0	4.0	41.5	6.8	11.0	7.6
3	Purina 20% Cow Chow	13.4	21.2	20.0	4.6	4.0	48.3	5.8	10.0	6.7
1	Purina 18% Cow Chow	11.9	20.6	18.0	4.2	4.0	47.2	6.8	10.0	6.3
2	Purina 16% Cow Chow	12.8	17.3	16.0	4.8	4.0	52.5	5.6	10.0	7.0
1	Purina Dry and Freshening Chow	13.7	11.1	12.5	2.8	2.5	18.1	12.1	14.0	9.2
1	Purina Duck Breeder Chow	11.6	20.9	19.5	5.0	4.0	50.5	4.1	6.5	7.9
3	Purina Egg Chow (Complete Ration)	11.6	17.5	15.5	4.6	3.5	52.9	5.9	8.0	7.5
1	Purina Family Flock Chow Checkers	10.6	20.2	18.0	3.4	3.5	50.3	6.6	8.0	8.9
2	Purina Goat Chow	12.7	17.6	16.0	3.8	3.5	52.1	7.1	10.0	6.7
3	Purina Layena (Complete Ration)	12.4	17.8	15.5	4.8	3.5	51.6	5.5	8.0	7.9
2	Purina Milk Chow (20%)	12.9	21.9	20.0	3.9	3.5	46.8	7.3	11.0	7.2
2	Purina Omolene	14.3	11.1	10.0	3.8	3.2	58.6	8.2	11.0	4.0
1	Purina Turkey Breeder Chow	10.5	24.9	23.0	5.6	4.0	40.7	6.3	8.0	12.0
4	Purina Turkey-Chicken Fatena Checkers	12.4	15.7	14.0	4.0	3.5	57.8	4.9	7.0	5.2
2	Purina Turkey Growena	11.0	18.7	18.0	4.9	4.0	52.2	6.1	7.0	7.1
1	Purina Turkey Layena (Complete Ration)	11.1	18.0	16.5	4.6	3.5	51.2	5.1	8.0	7.0
1	Purina Turkey Startena	10.8	24.8	24.0	5.5	4.5	46.9	4.6	7.0	7.1
	Reading Milling Co.									
1	Wertz's Special Laying Mash	10.8	18.6	20.0	5.2	4.0	49.0	6.3	7.0	10.1
	John Reardon & Son, Div. of Wilson & Co., Inc.									
3	Rearco 72 Feeding Bone [15]	3.0	5.2	5.0	0.3				–	85.6
2	Register Brand Cod & Haddock Fish Meal [16]	8.1	64.9	62.0	5.5	3.0			–	22.6
3	Register Brand 50% Protein Meat & Bone Scraps [17]	5.1	49.6	50.0	11.4	8.0			–	31.5
1	Register Brand 45% Protein Meat & Bone Scraps [18]	5.5	48.2	45.0	12.4	8.0				33.2
	D. F. Riley									
2	Riley's 20% Dairy Ration	11.5	22.4	20.0	4.6	4.5	46.7	8.0	9.0	6.8
2	Riley's Laying Mash	11.4	22.2	20.0	4.6	4.5	47.4	5.1	6.0	9.3
	Roy Grain Co.									
2	Chick Starter & Grower	12.1	19.3	18.0	4.6	4.5	48.5	6.3	7.0	9.2
2	Roy's Hen Mash	12.1	18.6	18.0	4.6	4.5	48.7	6.3	7.0	9.7
	Russell-Miller Milling Co.									
2	Hard Wheat Occident Bran	12.7	17.7	14.0	5.3	4.0	48.8	9.1	11.5	6.4
1	Hard Wheat Occident Standard Middlings	11.5	19.2	15.0	5.8	4.0	50.3	8.3	9.5	4.9
	Ryther & Warren Co.									
1	Blue Tag Dairy Ration	10.7	21.7	20.0	4.4	4.5	48.1	8.6	10.0	6.5
1	Minot Chick Mash	10.8	19.2	18.0	5.5	4.0	53.0	4.2	5.0	7.3

[15] Phosphoric acid 34.3 [16] Phosphoric acid 8.9 [17] Phosphoric acid 12.5 [18] Phosphoric acid 12.7

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Ryther & Warren Co.—Concluded									
4	Minot Growing Mash	10.2	19.7	18.5	5.2	4.5	50.8	5.8	6.0	8.3
1	Minot Milk Egg Mash	10.9	18.0	17.0	5.2	4.5	51.7	6.2	7.0	8.0
1	Minot Special Dairy Ration	10.8	20.8	20.0	5.1	4.5	49.6	8.4	10.0	5.3
	St. Albans Grain Co.									
1	Brewers Dried Grains	7.0	20.9	24.0	6.4	5.0	44.5	16.8	18.0	4.4
7	Energy 20 Dairy Ration	12.6	21.4	20.0	3.8	3.5	48.2	6.7	8.0	7.3
3	Hygrade 12 Fitting Ration	13.4	13.9	12.0	4.4	4.0	56.4	5.8	8.0	6.1
1	Hygrade Horse Feed	12.8	11.6	9.5	4.0	3.25	61.1	5.9	9.0	4.6
2	Hygrade 24 Milk Ration	11.7	25.6	24.0	4.4	4.0	44.5	6.6	8.5	7.2
2	Hygrade 20 Milk Ration	12.7	22.4	20.0	1.2	4.0	45.6	7.3	8.0	7.8
1	Hygrade 16 Milk Ration	13.0	17.6	16.0	4.0	4.0	54.6	6.9	8.5	6.9
1	Utility 20 Dairy Ration	12.4	21.1	20.0	3.6	3.5	45.1	9.6	12.0	7.9
1	Utility 16 Dairy Ration	11.9	18.0	16.0	3.1	3.0	51.3	10.5	13.0	5.2
2	Utility Growing Ration	10.9	16.7	15.0	4.8	4.0	53.3	6.7	7.0	7.6
2	Utility Laying Ration	11.2	18.9	18.0	4.9	4.0	47.3	6.6	7.0	11.1
2	Wirthmore Baby Chick Scratch	12.3	12.7	10.0	3.1	2.5	68.3	1.9	3.5	1.7
1	Wirthmore Baby Chick Starter	11.3	19.6	19.0	4.7	4.0	52.3	5.8	6.0	6.3
3	Wirthmore 25 Balanced Ration	11.7	26.0	25.0	4.6	4.5	43.9	7.7	8.5	6.1
2	Wirthmore Battery Ration	10.9	16.5	15.0	5.0	4.0	55.5	5.2	6.0	6.9
1	Wirthmore Breeder Pellets	11.3	16.9	15.0	4.6	4.0	54.4	5.1	6.1	7.7
2	Wirthmore Calf Starter	10.7	21.7	21.0	4.9	5.0	50.4	3.6	4.0	5.7
1	Wirthmore Complete Egg Ration	11.9	15.7	15.0	4.4	4.0	56.4	5.1	6.0	6.5
1	Wirthmore Complete Growing Ration	11.3	14.3	14.0	4.4	3.75	58.8	5.2	6.0	6.0
2	Wirthmore Complete Laying Ration	11.8	16.1	15.0	4.6	4.0	54.2	5.1	6.0	8.2
1	Wirthmore Complete Rabbit Ration	11.4	13.5	14.0	3.3	3.0	51.0	13.7	12.0	7.1
1	Wirthmore 20 Dairy Ration	12.0	21.3	20.0	4.4	4.5	50.1	7.5	8.0	4.7
1	Wirthmore Dairy Feed with Beet Pulp	13.2	22.1	20.0	3.7	4.0	48.2	7.2	11.0	5.6
2	Wirthmore 16 Dairy Ration	13.3	16.8	16.0	4.2	4.0	53.4	5.6	8.0	6.7
3	Wirthmore Finishing Pellets	11.5	15.5	15.0	4.0	4.0	57.9	5.3	6.5	5.8
2	Wirthmore 14 Fitting Ration	11.7	15.5	14.0	4.3	4.0	56.2	6.2	7.0	6.1
3	Wirthmore Fodder Greens	13.2	12.8	10.0	3.1	3.0	53.8	9.6	15.0	7.5
1	Wirthmore Goat Pellets	12.5	16.6	16.0	4.8	4.0	54.9	5.4	8.0	5.8

2	Wirthmore Growing Pellets	11.5	14.3	14.0	4.3	3.75	58.3	5.5	6.0	6.1
3	Wirthmore Horse Feed	13.7	10.3	9.8	3.6	3.25	63.0	6.1	9.0	3.3
2	Wirthmore Laying Pellets	10.9	16.6	15.0	4.5	4.0	55.6	5.4	6.0	7.0
1	Wirthmore Poultry Flush	10.1	18.8	17.5	4.1	4.0	52.4	5.1	5.0	9.5
1	Wirthmore Rabbit Pellets	9.6	16.2	14.0	4.4	3.5	53.0	8.9	9.0	7.9
1	Wirthmore 32% Ration	11.4	31.7	32.0	4.7	4.0	38.3	7.0	8.0	6.9
2	Wirthmore Record Ration	12.0	20.9	20.0	4.4	4.25	49.8	7.1	8.5	5.8
1	Wirthmore Special Broiler Feed	12.6	20.4	20.0	4.8	4.0	49.7	5.9	6.5	6.6
6	Wirthmore Stock Feed	11.2	10.3	9.0	5.3	4.0	58.7	8.6	9.5	5.9
2	Wirthmore Super Pellets	9.9	22.1	20.0	5.1	4.0	44.8	7.3	10.0	10.8
2	Wirthmore Turkey Fattening Ration	11.6	17.5	16.0	4.7	4.5	53.7	5.1	7.0	7.4
2	Wirthmore Turkey Growing Ration	11.1	23.1	20.0	4.6	4.0	47.7	5.5	7.0	7.7
2	Wirthmore Wheat Feed	12.1	17.1	15.0	4.8	3.75	52.8	8.0	8.0	4.9
1	Wirthmore Flour Midds	12.1	18.1	15.0	5.0	4.0	54.9	5.9	6.0	3.7
	Saunders Mills, Inc.									
3	Blue Bonnet Brand Alfalfa Leaf Meal	9.3	20.2	20.0	2.4	1.5	37.5	20.0	18.0	10.6
	Schenley Distilleries, Inc., Grain Dept.									
1	Schenley Mark of Merit Corn Distillers Dried Grains	6.0	27.5	28.0	9.8	8.0	41.7	12.7	13.0	2.3
	Schoeneck Farms, Inc.									
2	Keystone Brand Dehydrated Alfalfa Meal	7.5	15.9	17.0	2.7	2.0	43.9	21.7	25.0	8.3
	Joseph E. Seagram & Sons, Inc.									
2	Seagram's Corn Distillers Dried Grains	10.9	26.6	28.0	9.0	8.0	42.7	6.9	14.0	3.9
	Sherwin-Williams Co., Cleveland, Ohio									
1	S-W-C Old Process Linseed Meal	14.0	33.2	32.0	5.5	4.5	37.1	8.0	9.0	5.2
	Sherwin-Williams Co. of Canada, Ltd.									
1	Sherwin-Williams Screwpress 34% Protein Linseed Oil Cake Meal	10.1	33.6	34.0	5.6	5.5	36.5	8.1	8.0	5.8
	W. J. Small Co., Inc.									
1	Small's 17% Fine Ground Dehydrated Alfalfa Meal	5.1	18.3	17.0	3.6	1.75	40.6	21.5	27.0	10.9
	Mrs. Annie P. Smith									
1	Pentucket Laying Mash	11.1	18.4	16.2	5.1	3.5	49.3	6.8	8.0	9.3
	Southern Cotton Oil Co.									
4	41% Protein Cottonseed Meal	6.7	12.1	11.0	6.7	5.0	28.1	9.9	13.0	6.5
	Soya Processing Co.									
1	Wooster Brand Soybean Oil Meal	16.4	42.4	41.0	4.7	4.0	25.7	5.1	7.0	5.7

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Squier & Co.									
1	Squiers Buttermilk Egg Mash	11.4	17.6	18.0	4.6	5.0	53.1	5.5	7.0	7.8
	A. E. Staley Manufacturing Co.									
5	Staley's Corn Gluten Feed	12.2	26.8	25.0	2.6	1.5	44.6	6.1	8.0	7.7
1	Staley's 41% Protein Soybean Oil Meal	12.2	43.2	41.0	4.6	4.0	29.0	5.7	7.0	5.3
	Standard Milling Co.									
1	Planet Feed	12.4	18.1	15.0	4.8	4.0	54.1	6.0	8.0	4.6
1	Red Turkey Pure Wheat Bran	12.2	16.2	15.0	4.0	3.5	51.6	9.5	10.0	6.5
1	Wheat Mixed Feed	12.8	17.7	15.0	5.0	4.0	51.1	8.2	8.5	5.2
	David Stott Flour Mills, Inc.									
1	Pennant Wheat Middlings & Wheat Screenings	12.2	17.3	15.0	5.0	4.0	54.2	7.0	9.0	4.3
1	Spring Wheat Bran and Wheat Screenings	13.6	16.2	14.5	4.9	4.0	50.1	9.2	12.5	6.0
	Stoughton Grain Co.									
2	Bay State Breeder & Laying Mash	11.4	19.6	20.0	5.5	4.0	47.9	6.2	7.0	9.4
	Stratton & Co.									
2	Stratton's Bran with Mill Run Screenings	11.6	14.7	14.0	4.5	4.0	56.0	7.9	11.0	5.3
2	Stratton's Standard Wheat Middlings	12.8	14.9	14.0	4.5	4.0	57.1	5.9	9.0	4.8
2	Stratton's Wheat Mixed Feed with Mill Run Screenings	12.1	14.7	13.5	4.6	4.11	55.2	7.7	7.13	5.7
2	Stratton's "24" Stock Feed	12.0	7.5	7.5	3.2	2.83	62.4	12.0	14.43	2.9
	C. H. Symmes & Co.									
2	The Ideal Dairy Ration	12.9	20.1	20.0	4.0	3.5	49.7	6.2	8.5	7.1
	Tioga Mills, Inc.									
1	Tasty Laying Food (1939 registration)	10.2	22.6	20.0	5.1	4.0	46.1	6.6	7.5	9.4
1	Tasty Laying Food	11.9	21.5	20.0	5.1	3.5	46.1	6.3	7.5	9.1
1	Ti-O-Ga 32% Feed	10.3	31.4	32.0	5.5	4.5	34.2	7.8	10.0	10.8
1	Ti-O-Ga E-Gee 20% Dairy Feed (1939 registration)	12.8	21.4	20.0	4.6	4.0	46.2	7.6	10.0	7.4
1	Tioga E-Gee 20% Dairy Feed	10.7	21.1	20.0	5.7	4.5	45.3	9.0	10.0	8.2
2	Ti-O-Ga Starter & Grower	11.2	19.1	16.5	5.0	4.0	50.8	6.4	7.5	7.5

	Tremaine Alfalfa Ranch & Milling Co., Inc.									
1	Arizona Brand Alfalfa Leaf Meal	6.4	19.3	20.0	1.8	2.5	41.0	18.7	18.0	12.8
	Jacob Trinley & Sons									
1	Favorite Laying (Complete) Mash	11.6	19.1	18.0	4.5	4.0	46.9	8.2	8.0	9.7
1	Limerick Laying Mash	12.2	21.2	18.0	3.9	4.0	48.0	7.2	8.0	7.5
1	Limerick Stock Feed	13.3	12.6	9.0	3.3	2.5	54.0	10.7	12.0	6.1
1	Real Stock Feed	10.6	13.0	12.0	4.5	4.0	53.1	12.1	12.0	6.7
6	Supreme 85% Horse Feed	11.2	10.3	9.0	3.5	3.0	61.6	7.1	11.0	3.3
3	Trinley's 24% Dairy Feed	12.1	24.6	24.0	4.7	4.0	43.3	8.4	11.0	6.9
4	Trinley's 20% Dairy Feed	12.9	20.9	20.0	4.3	4.0	46.6	8.7	11.0	6.6
	Union Starch Refining Co.									
1	Union Corn Gluten Feed	10.9	26.7	25.0	3.4	1.0	44.7	7.7	8.0	6.6
3	Union Corn Gluten Meal	9.6	44.0	41.0	1.1	1.0	39.9	4.0	3.0	1.4
	Union Supply & Milling Corp.									
3	Sunshine Brand Alfalfa Leaf Meal	9.4	20.5	20.0	2.6	3.0	37.5	17.6	18.0	12.4
	United Cooperative Farmers, Inc.									
1	United Farmers Egg Mash	11.4	21.7	20.0	5.2	4.0	43.9	6.4	7.5	11.4
1	United Farmers Fitting Ration	11.8	15.1	12.0	4.8	3.5	53.2	8.0	7.0	7.1
1	United Farmers Grower	10.2	20.6	18.0	5.1	4.5	50.2	5.9	7.5	8.0
1	United Farmers Horse Feed	13.8	11.8	10.5	3.4	3.5	61.0	5.1	6.5	4.9
1	United Farmers Layer	11.3	20.1	18.5	5.3	4.5	48.4	5.6	7.5	9.0
1	United Farmers Milk Pep	11.1	21.0	21.0	5.4	4.5	45.9	5.9	8.0	7.7
1	United Farmers Milkmaker	11.5	22.5	20.0	4.9	4.5	46.9	6.9	8.0	7.3
1	United Farmers Starter	12.1	18.6	17.0	3.9	4.0	52.8	5.0	6.0	7.6
	United Farmers' Cooperative Creamery Assn., Inc.									
1	Dried Skim Milk [19]	7.1	31.1	32.0	0.8	0.5	–	–	–	7.8
	Unity Feeds, Inc.									
2	Life Saver 20% Dairy Ration	11.5	20.4	20.0	3.3	3.0	46.4	10.5	11.0	7.9
3	Paycheck 24% Dairy Ration	12.2	25.3	24.0	4.8	4.0	42.1	8.2	11.0	7.4
3	Paycheck 20% Dairy Ration	11.9	21.9	20.0	4.7	4.0	45.1	9.5	11.0	6.9
4	Paycheck Laying Mash	11.7	19.1	18.0	4.8	3.0	48.7	6.8	8.0	8.6
1	Unity Complete Starting and Broiler Mash	10.6	18.6	17.0	5.5	3.5	48.2	5.3	5.5	11.8
1	Unity 24% Dairy Ration	12.0	25.0	21.0	5.2	4.0	42.5	7.9	10.0	7.4
1	Unity 20% Dairy Ration	11.3	23.3	20.0	4.6	4.0	47.7	6.6	10.0	6.5
1	Unity Fitting Ration	11.8	15.4	12.0	5.3	4.0	55.0	6.3	7.0	6.2
1	Unity Growing Mash	10.8	15.6	14.0	5.0	3.0	54.8	6.6	7.0	7.2
4	Unity Horse Feed	14.0	11.5	10.0	4.7	3.0	60.1	6.1	9.0	3.6
2	Unity Laying Mash	11.8	19.9	18.0	5.7	3.0	47.9	6.0	7.0	8.7
1	Unity Pig and Hog Ration	11.5	19.5	17.0	5.5	4.0	46.5	5.3	8.0	11.7
3	Unity Stock Feed	9.8	9.8	8.5	4.9	4.0	59.7	10.2	12.0	5.6

[19] Lactose 50.2

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Valley City Milling Co.									
1	Rowena Pure Wheat Bran	12.1	14.4	12.5	4.1	3.0	55.1	8.8	11.5	5.5
1	Rowena Wheat Middlings	11.5	15.8	14.0	5.3	5.0	59.3	4.7	6.4	3.4
1	Rowena Standard Mixed Feed	11.9	14.5	13.5	4.3	3.7	57.2	7.4	9.0	4.7
	Van Vechten Milling Corp.									
1	Irving Mills Rye Feed	11.4	16.8	13.0	3.4	2.0	59.9	4.6	10.0	3.9
	Arthur Ventura Grain Co.									
2	Every-Day Dairy	12.1	21.8	22.0	4.4	4.5	50.3	6.9	6.0	4.5
1	Ventura Grower	11.4	13.7	16.0	4.5	4.0	57.1	6.1	6.0	7.2
2	Ventura Laying Mash	12.0	18.1	19.0	5.4	5.0	50.4	5.9	7.0	8.2
	Voigt Milling Co.									
1	Voigt Pure Winter Wheat Bran	13.6	16.3	14.0	3.6	3.0	53.3	7.8	10.0	5.4
	Ward Milk Products Division of Kraft-Phoenix Cheese Corporation									
2	Ward's Dried Buttermilk	9.0	31.8	30.0	5.7	5.0	–	–	–	8.5
2	Ward's Dried Skim Milk [20]	6.0	35.6	32.0	1.6	1.0	–	–	–	8.3
	C. P. Washburn Co.									
2	"Made Right" Balanced Ration	10.7	21.8	22.0	4.6	4.0	47.9	8.7	10.0	6.3
3	"Made Right" Complete Broiler Ration	11.8	18.9	18.0	4.3	4.0	51.3	6.6	7.0	7.1
2	"Made Right" Complete Layer	11.4	16.1	16.0	5.0	4.0	54.6	6.4	6.0	6.5
2	"Made Right" 16% Dairy Ration	11.4	18.9	16.0	4.6	3.5	50.1	8.5	12.0	6.5
3	"Made Right" Dry Mash	11.0	20.0	20.0	4.7	4.5	49.3	7.0	7.0	8.0
4	"Made Right" Fitting Ration	13.3	15.2	13.5	4.5	3.5	53.8	7.4	9.0	5.8
2	"Made Right" Horse Feed	14.3	11.1	8.0	3.7	3.0	63.5	4.9	7.0	2.5
2	"Made Right" Mixed Feed	12.1	16.7	15.0	4.1	3.5	54.1	8.1	9.0	4.9
2	"Made Right" Starting & Growing Feed	11.4	19.8	20.0	4.6	4.0	49.5	7.1	7.0	7.6
2	"Made Right" Sweet 20% Dairy Feed	10.2	20.2	20.0	4.5	4.0	48.7	9.9	10.0	6.5
1	"Made Right" Sweet Dairy Feed	11.4	21.8	20.0	4.6	4.0	47.6	8.6	8.0	6.0
2	"Made Right" White Stock Feed	10.9	9.5	8.0	5.1	3.5	61.3	9.9	10.0	3.3

	Wayne County Grangers Feed Corp.									
3	Clyde 20% Dairy Feed	13.9	20.1	20.0	3.9	1.0	47.2	8.3	10.0	6.6
1	Cornell Mash	13.0	18.9	18.0	5.0	4.0	48.5	5.5	10.0	9.1
1	Economy 20 Dairy Feed	14.1	19.7	20.0	3.9	4.0	47.6	8.7	12.0	6.0
2	Milkproducer 24% Dairy Feed	14.2	21.7	21.0	3.9	4.0	45.2	8.2	10.0	6.8
1	Milkproducer 20% Dairy Feed	13.1	19.0	20.0	3.9	3.0	46.6	10.3	12.0	7.1
1	Superior Horse Feed	14.2	11.2	10.0	2.8	3.0	62.2	6.4	9.0	3.2
	H. K. Webster Co.									
2	Blue Seal All-Mash Growing Ration	13.1	15.4	14.5	5.0	4.0	56.6	4.1	5.0	5.8
2	Blue Seal Breeders Mash	12.2	18.9	20.0	5.0	4.0	50.6	4.4	6.0	8.9
2	Blue Seal Breeders' All-Mash Ration	13.3	15.5	15.0	4.9	4.5	56.4	4.1	4.5	5.8
2	Blue Seal Broiler Ration	12.1	19.3	20.0	4.9	4.5	50.7	4.9	6.0	7.8
2	Blue Seal Chick Starter	11.7	18.6	18.0	4.8	4.0	51.4	5.7	6.0	7.8
2	Blue Seal "20" Dairy Ration	12.2	23.5	20.0	4.3	4.0	46.7	7.3	9.0	6.0
3	Blue Seal "18" Dairy Ration	13.3	18.4	18.0	4.1	4.5	51.8	6.5	9.0	5.6
2	Blue Seal Egg Mash	12.3	18.3	19.0	5.2	4.5	51.2	4.9	6.0	8.1
2	Blue Seal Fitting Ration	13.6	15.2	13.0	4.2	4.5	55.0	6.3	7.0	5.7
2	Blue Seal Fleshing Pellets	11.1	17.0	15.0	5.7	5.0	55.7	4.5	4.0	6.0
2	Blue Seal Growing Mash	12.7	17.6	18.0	4.6	4.0	52.5	5.1	6.5	7.5
2	Blue Seal Hom-Mix 24% Dairy Ration	11.3	23.8	24.0	5.3	4.5	44.4	9.1	9.0	6.1
2	Blue Seal Horse Feed	13.0	10.3	10.5	3.4	3.5	65.0	4.5	7.5	3.8
2	Blue Seal Improved All-Mash Ration	13.0	15.4	15.0	5.0	4.5	55.9	4.1	4.5	6.6
2	Blue Seal Improved Balanced Ration	11.6	24.8	24.0	4.4	4.5	45.4	7.7	8.5	6.1
2	Blue Seal Laying Mash	12.0	19.0	20.0	4.9	4.0	50.2	5.1	6.0	8.8
2	Blue Seal Special 20% Dairy Ration	11.9	20.1	20.0	4.4	4.5	46.3	10.7	10.0	6.6
2	Blue Seal Stock Feed	9.2	13.7	8.5	4.1	3.5	51.3	13.6	11.0	8.1
1	Blue Seal Succulent Feed	11.1	11.6	10.0	2.0	2.0	51.1	16.7	15.0	7.5
	Western Condensing Co.									
1	Peebles Lacto-G Dried Whey [21]	9.8	11.5	12.0	1.2	0.5	–	–	–	11.1
	Est. M. G. Williams									
2	Williams' Chick Starter	11.2	20.8	17.0	4.5	1.0	49.1	8.4	7.0	6.0
2	Williams' Growing Mash	11.3	18.5	15.0	5.3	4.0	50.5	6.0	7.0	8.4
2	Williams' Balanced Ration	10.2	21.3	20.0	4.5	1.0	49.6	8.4	12.0	6.0
2	Williams' Laying Mash	11.5	18.5	16.0	5.5	4.0	50.2	5.8	7.0	8.5
1	Williams' Stock Feed	11.3	11.8	10.0	4.3	4.0	56.8	11.0	12.0	4.8
	C. H. Williamson & Co., Inc.									
2	Wheat Bran with Ground Screenings	12.3	16.4	14.5	4.2	3.5	51.1	9.6	11.0	6.4
	Wilmington Packing Co.									
5	Phoenix Blended Fish Meal [22]	7.7	56.6	55.0	7.4	8.0	–	–	–	21.6

[20] Lactose 48.5 [21] Lactose 66.4 [22] Phosphoric acid 6.1

Complete Average Analyses of Feeds Collected (Per Cent)—Concluded

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Stanley Wood Grain Co.									
2	Bliss Dairy Ration	11.3	22.7	22.0	4.3	5.0	48.1	6.2	10.0	7.4
2	Preferred Complete Growing Ration	12.1	16.7	15.0	3.3	4.0	59.6	4.2	5.0	4.1
2	Preferred Complete Laying Ration	12.2	16.4	15.0	3.9	4.0	58.0	3.9	5.0	5.6
2	Preferred Growing Feed	12.4	17.7	17.5	4.2	4.5	52.7	5.5	6.0	7.5
2	Preferred Laying Mash	11.8	19.9	20.0	4.5	4.5	49.4	5.8	7.0	8.6
2	Preferred Starting Feed	11.3	19.1	18.5	4.5	4.0	53.2	4.7	5.0	7.2
2	Woods Dairy Ration	12.6	21.6	20.0	3.4	4.0	48.9	7.2	10.0	6.3
	Worcester Grain & Coal Co.									
1	Just Right Chick Starter	11.1	18.6	16.0	4.9	4.0	52.6	5.0	6.0	7.8
1	Just Right 24% Dairy Ration	11.1	26.0	24.0	4.9	4.0	42.9	7.7	9.0	7.4
1	Just Right 20% Dairy Ration	12.1	21.5	20.0	4.4	4.0	48.4	6.9	9.0	6.7
1	Just Right Growing Mash	11.2	17.6	16.0	5.5	4.0	50.1	7.8	6.0	7.8
1	Just Right Laying Mash	11.5	19.9	18.0	5.3	4.0	46.9	6.7	7.0	9.7

Feeds Not Conforming to Guarantees

(Shortages of less than one per cent in protein or fat or an excess of less than one per cent in fiber are not listed)

Samples Collected	Samples Not Conforming to Guarantee	Manufacturer and Brand	Protein Deficiency Percent	Fat Deficiency Percent	Fiber Excess Percent
		Allied Mills, Inc.			
1	1	Wayne Turkey Starting Mash	1.9	–	–
		American Maize-Products Co.			
1	1	Amaizo Gluten Meal	–	–	1.7
		Arcady Farms Milling Co.			
1	1	Arcady Complete Laying Ration	–	–	1.3
4	1	Arcady Laying Mash	–	–	1.2
1	1	Beets–Oats Horse & Mule Feed	1.4	–	–
		E. W. Bailey & Co.			
1	1	Bailey's Pennant Brand Complete Starter & Broiler	–	–	1.0
		Berkshire Coal & Grain Co., Inc.			
3	1	Green Mountain Dairy Ration	1.0	–	–
		George B. Brown Corp.			
1	1	Brown's Egg Mash	1.1	–	–
		Coatsworth & Cooper			
2	1	"C and C" Wheat Bran	1.1	–	–
		Coles Feed & Grain Co.			
2	2	Fortune Producer Mash	–	–	1.5
		Fortune Producer Mash	–	–	1.3
		Consolidated Rendering Co.			
1	1	Corenco 55% Meat Scrap	1.1	–	–
1	1	Corenco 45% Meat Scrap	1.1	–	–
		Nicolas Courcy Grain Co.			
2	1	Courcy's Dairy Feed	1.0	–	–
		Curley Grain & Fuel Co.			
2	1	Crystal All Grain Starting Food	–	1.2	–
2	1	Premier Stock Food	–	1.1	–
		Denver Alfalfa Milling & Products Co.			
2	1	Jack Rabbit Dehydrated Alfalfa Meal	–	–	1.6
		Dewey Bros. Co.			
1	1	Corn 3 D (Dewey's Distillers Dried) Grains	1.6	–	–
		Frank Diauto			
2	2	Diauto's Special Egg Mash	1.6	–	–
		Diauto's Special Egg Mash	1.3	–	–
		J. L. Dunnell & Son			
1	1	Full Value Mixed Feed	–	–	1.4
		Eastern States Farmers' Exchange			
5	1	Eastern States Fulpail Dairy Ration	1.0	–	–
2	1	Eastern States Highland 20	1.0	–	–
		Elmore Milling Co., Inc.			
2	1	Elmore 32% Supplemental Dairy Ration	3.7	–	–
		Farm Service Co.			
2	1	C Growing Mash	1.1	–	–
1	1	Farm Service Goat Ration	–	1.5	–
2	2	Lawrence Cow Ration	1.9	–	–
		Lawrence Cow Ration	1.1	–	–
3	3	N.E.C. Laying Mash	–	–	1.3
		N.E.C. Laying Mash	1.4	–	1.4
		N.E.C. Laying Mash	1.4	–	–
		Farmers Feed Co., New York, N. Y.			
5	3	"Bull Brand" Dried Brewers Grains	2.0	–	–
		"Bull Brand" Dried Brewers Grains	1.6	–	–
		"Bull Brand" Dried Brewers Grains	1.6	–	–
		Finger Lakes & Hudson Flour Mills, Inc.			
2	2	Kangaroo Red Dog	–	–	1.8
		Kangaroo Red Dog	–	–	1.7
1	1	Kangaroo Standard Wheat Middlings	–	–	1.0

Feeds Not Conforming to Guarantees—Continued

(Shortages of less than one per cent in protein or fat or an excess of less than one per cent in fiber are not listed)

Samples Collected	Samples Not Conforming to Guarantee	Manufacturer and Brand	Protein Deficiency Percent	Fat Deficiency Percent	Fiber Excess Percent
		Flory Milling Co., Inc.			
2	2	Blue Mountain Horse Feed	–	–	2.3
		Blue Mountain Horse Feed	–	–	3.0
2	2	Sunray Laying Mash	2.5	–	–
		Sunray Laying Mash	1.8	–	–
		Goode Grain Co.			
4	4	Goode Laying Mash	–	–	1.5
		Goode Laying Mash	–	–	1.3
		Goode Laying Mash	–	–	1.5
		Goode Laying Mash	1.5	–	–
2	1	Goode Starting & Growing Mash	–	–	1.3
		Great Atlantic & Pacific Tea Co.			
2	1	Milky Way Dairy Feed	2.3	–	–
		Horvitz Grain Co.			
2	2	Mak-M-Lay Laying Mash	1.7	–	–
		Mak-M-Lay Laying Mash	1.3	–	–
		Humphreys-Godwin Co.			
3	1	Dixie Brand Cottonseed Meal	1.2	–	–
		Independent Tallow Co., Inc.			
3	2	Eggaday Brand 50% Meat and Bone Scrap	1.2	–	–
		Eggaday Brand 50% Meat and Bone Scrap	3.4	–	–
		Jaquith & Co.			
2	1	Growing Mash	–	–	1.6
2	2	Starting Feed	–	–	3.0
		Starting Feed	–	–	2.2
		Sheldon Lattin, Inc.			
2	2	Corn Distillers Dried Grains	1.2	–	1.2
		Corn Distillers Dried Grains	1.5	–	–
		Maritime Milling Co., Inc.			
2	2	B-B Layer and Breeder Mash	1.8	–	–
		B-B Layer and Breeder Mash	2.0	–	–
		Middlesex County Farm Bureau Association			
4	1	Farm Bureau Breeder & Laying Mash 20%	1.1	–	–
2	1	Farm Bureau Developer	1.3	–	–
4	1	Farm Bureau Starter & Broiler	–	–	1.1
1	1	Farm Bureau Turkey Breeder Mash	3.7	–	–
4	2	Farm Bureau Turkey Growing Ration	1.3	–	–
		Farm Bureau Turkey Growing Ration	–	–	1.0
3	2	Farm Bureau Turkey Starter	1.5	–	–
		Farm Bureau Turkey Starter	3.1	1.0	–
		Geo. Q. Moon & Co., Inc.			
2	1	Moon's Complete Growing Mash	–	–	1.1
3	3	Moon's Complete Starter & Broiler Mash	–	–	2.1
		Moon's Complete Starter & Broiler Mash	–	–	2.2
		Moon's Complete Starter & Broiler Mash	–	–	1.7
4	1	Moon's Stock Feed	–	–	1.1
1	1	Moon's Turkey Starting Mash	2.1	–	1.0
2	2	U. S. 24% Dairy Ration	2.3	–	–
		U. S. 24% Dairy Ration	2.4	–	–
		Jas. F. Morse & Co.			
2	1	Morse's 50% Meat Scrap	1.0	–	–
		Neumond Co.			
1	1	Neumond's 20% Dehydrated Alfalfa Leaf Meal	3.4	–	–
		New England Grain Co.			
5	1	New England Economy 20% Dairy Feed	–	–	1.6
		New England Economy 20% Dairy Feed	–	–	3.8
		New England Economy 20% Dairy Feed	–	–	4.9
		New England Economy 20% Dairy Feed	–	–	2.9
2	1	New England Economy Starter & Growing Feed	1.1	–	–
3	1	New England Egg Mash	2.7	–	–
2	1	New England Fitting Ration	–	–	1.0
1	1	New England Stock Feed	–	–	2.1
2	2	New England Sweetened Stock Feed	–	–	1.9
		New England Sweetened Stock Feed	–	–	1.0

Feeds Not Conforming to Guarantees—Concluded

(Shortages of less than one per cent in protein or fat or an excess of less than one per cent in fiber are not listed)

Samples Collected	Samples Not Conforming to Guarantee	Manufacturer and Brand	Protein Deficiency Percent	Fat Deficiency Percent	Fiber Excess Percent
		New England Retail Grain Dealers Cooperative Association, Inc.			
2	1	New England Quality 20% Dairy Feed	1.2	–	–
1	1	New England Quality Laying Mash	1.5	–	–
2	1	New England Yankee 20% Dairy Ration	1.1	–	–
		Old Fort Mills, Inc.			
2	1	Old Fort Soybean Oil Meal	–	–	1.7
		Quaker Oats Co.			
4	1	Quaker 24% Protein Dairy Feed	1.6	–	–
		Reading Milling Co.			
1	1	Wertz's Special Laying Mash	1.4	–	–
		John Reardon & Sons, Division of Wilson & Co., Inc.			
3	1	Register Brand 50% Protein Meat & Bone Scraps	1.2	–	–
		St. Albans Grain Co.			
1	1	Brewers Dried Grains	3.1	–	–
3	1	Wirthmore 25% Balanced Ration	1.0	–	–
1	1	Wirthmore Complete Rabbit Ration	–	–	1.7
2	1	Wirthmore Wheat Feed	–	–	1.0
		Saunders Mills, Inc.			
3	3	Blue Bonnet Brand Alfalfa Leaf Meal	–	–	2.2
		Blue Bonnet Brand Alfalfa Leaf Meal	–	–	1.9
		Blue Bonnet Brand Alfalfa Leaf Meal	–	–	2.0
		Schoeneck Farms, Inc.			
2	2	Keystone Brand Dehydrated Alfalfa Meal	1.1	–	–
		Keystone Brand Dehydrated Alfalfa Meal	1.2	–	–
		Joseph E. Seagram & Sons, Inc.			
2	1	Seagram's Corn Distillers Dried Grains	2.5	–	–
		Union Starch & Refining Co.			
3	2	Union Corn Gluten Meal	–	–	1.1
		Union Corn Gluten Meal	–	–	1.0
		United Cooperative Farmers, Inc.			
1	1	United Farmers Fitting Ration	–	–	1.0
		Arthur Ventura Grain Co.			
1	1	Ventura Grower	2.3	–	–
2	1	Ventura Laying Mash	2.0	–	–
		C. P. Washburn Co.			
2	1	"Made Right" Balanced Ration	1.1	–	–
2	1	"Made Right" Sweet Dairy Feed	–	–	2.1
		Wayne County Grangers Feed Corp.			
2	2	Milkproducer 24% Dairy Feed	2.6	–	–
		Milkproducer 24% Dairy Feed	2.0	–	–
1	1	Milkproducer 20% Dairy Feed	1.0	–	–
		H. K. Webster Co.			
2	1	Blue Seal Breeders Mash	2.0	–	–
2	1	Blue Seal Broiler Ration	1.2	–	–
2	1	Blue Seal Egg Mash	1.5	–	–
2	1	Blue Seal Growing Mash	1.3	–	–
2	1	Blue Seal Laying Mash	1.5	–	–
2	2	Blue Seal Stock Feed	–	–	1.5
		Blue Seal Stock Feed	–	–	2.5
1	1	Blue Seal Succulent Feed	–	–	1.7
		Worcester Grain & Coal Co.			
1	1	Just Right Growing Mash	–	–	1.8

Certified Ingredients

Allied Mills, Inc.

Economy 20% Dairy Feed
Soybean oil meal, cottonseed meal, yellow corn meal, corn distillers' dried grains, brewers' dried grains, corn gluten feed, ground oats, wheat bran, cane molasses, 1.5% ground limestone, 0.03% steamed bone meal, 0.03% iron oxide, 1% iodized salt.

Sugarine 20% Dairy Feed
Corn distillers' dried grains, brewers' dried grains, soybean oil meal, corn gluten feed, cottonseed meal, corn meal, wheat bran, ground and bolted screenings from flax, wheat, corn, oats and barley, oat mill feed (oat hulls, oat shorts, oat middlings), cane molasses, 1% ground limestone, 1% salt.

Sugarine 16½% Dairy Feed
Corn distillers' dried grains, brewers' dried grains, soybean oil meal, corn gluten feed, corn gluten meal, cottonseed meal, corn meal, wheat bran, ground and bolted screenings from flax, wheat, corn, oats and barley, oat mill feed (oat hulls, oat shorts, oat middlings), cane molasses, 1% ground limestone, 1% salt.

Wayne Chick & Broiler Ration
Animal liver meal, fish meal, dried skimmed milk, dehydrated alfalfa meal, soybean oil meal, meat scraps, corn gluten meal, wheat standard middlings, fine ground oats, wheat bran, yellow corn meal, 0.03% manganese sulphate, 1.8% ground limestone, 0.03% iron oxide, 0.15% iodized salt, fortified sardine oil.

Wayne Chick Starter
Animal liver meal, fish meal, dried skimmed milk, dehydrated alfalfa meal, soybean oil meal, meat scraps, corn gluten meal, wheat standard middlings, fine ground oats, wheat bran, yellow corn meal, 0.03% manganese sulphate, 1.8% ground limestone, 0.03% iron oxide, 0.15% iodized salt, fortified sardine oil.

Wayne Egg & Breeder Mash
Animal liver meal, fish meal, dried skimmed milk, dehydrated alfalfa meal, soybean oil meal, meat scraps, corn gluten meal, wheat standard middlings, corn gluten feed, fine ground oats, wheat bran, yellow corn meal, 0.04% manganese sulphate, 2.7% ground limestone, 0.04% iron oxide, 0.2% iodized salt, fortified sardine oil.

Wayne Flushing Mash
Dried whey, fish meal, soybean oil meal, meat scraps, wheat standard middlings, wheat bran, yellow corn meal, 0.03% manganese sulphate, 1.8% ground limestone, 0.03% iron oxide, 0.15% iodized salt.

Wayne Growing Mash
Animal liver meal, fish meal, dried skimmed milk, dehydrated alfalfa meal, soybean oil meal, meat scraps, corn gluten meal, wheat standard middlings, fine ground oats, wheat bran, yellow corn meal, 0.04% manganese sulphate, 2.7% ground limestone, 0.04% iron oxide, 0.2% iodized salt, fortified sardine oil.

Wayne 26% Mash Supplement
Animal liver meal, fish meal, dried skimmed milk, dehydrated alfalfa meal, soybean oil meal, meat scraps, corn gluten meal, wheat standard middlings, corn gluten feed, wheat bran, 0.06% manganese sulphate, 4.5% ground limestone, 0.06% iron oxide, 0.3% iodized salt, fortified sardine oil.

Wayne Turkey Growing Mash
Animal liver meal, fish meal, dried skimmed milk, dehydrated alfalfa meal, soybean oil meal, meat scraps, corn gluten meal, wheat standard middlings, fine ground oats, wheat bran, yellow corn meal, 0.04% manganese sulphate, 2.7% ground limestone, 0.04% iron oxide, 0.2% iodized salt, fortified sardine oil.

Wayne Turkey Starting Mash
Animal liver meal, fish meal, dried skimmed milk, dehydrated alfalfa meal, soybean oil meal, meat scraps, corn gluten meal, wheat standard middlings, fine ground oats, wheat bran, yellow corn meal, 0.03% manganese sulphate, 1.8% ground limestone, 0.03% iron oxide, 0.15% iodized salt, fortified sardine oil.

Wayne-Amco 24% Dairy Ration
Corn gluten meal, corn distillers' dried grains, brewers' dried grains, corn gluten feed, old process linseed oil meal, soybean oil meal, cottonseed meal, ground oats, yellow corn meal and hominy meal, wheat bran, cane molasses, 1.5% ground limestone, 0.3% steamed bone meal, 0.03% iron oxide, 1.0% iodized salt.

Wayne-Amco 20% Dairy Ration
Cottonseed meal, brewers' dried grains, corn distillers' dried grains, ground oats, corn gluten feed, yellow corn meal and hominy meal, soybean oil meal, corn gluten meal, old process linseed oil meal, wheat bran, cane molasses, 1.5% ground limestone, 0.3% steamed bone meal, 0.03% iron oxide, 1.0% iodized salt.

A. P. Ames & Co.

Ames Complete Cycle Ration
Corn meal, wheat middlings, wheat bran, pulverized whole oats, meat scraps, cod fish meal, dried milk, alfalfa leaf meal, calcium carbonate, salt, fortified cod liver oil, manganese sulphate.

Ames Egg Mash
Corn meal, wheat middlings, meat scraps, pulverized whole oats, wheat bran, alfalfa leaf meal, dried milk, cod fish meal, calcium carbonate, salt, fortified cod liver oil, manganese sulphate.

Ames 20% Milk Maker
Gluten, corn meal (and, or hominy), wheat bran, wheat middlings, linseed meal (and, or soy bean oil meal, and or cottonseed meal), oat feed, calcium carbonate, and salt.

Ames Starter & Broiler Ration
Corn meal, wheat middlings, dried skim milk, pulverized whole oats, wheat bran, alfalfa leaf meal, cod fish meal, meat scraps, calcium carbonate, salt, manganese sulphate, fortified cod liver oil.

Arcady Farms Milling Co.

Arcady Complete Broiler Ration
Wonderlas (molasses, peanut oil meal, soy bean oil meal, O. P. linseed oil meal), animal liver meal, fish meal, corn meal, ground oat groats, alfalfa leaf meal, pulverized oats, wheat middlings, wheat bran, meat scraps, condensed buttermilk, fortified cod liver containing 400 units Vitamin D and 3000 units Vitamin A per gram, cold pressed wheat germ oil, 1% calcium carbonate from limestone, ½ of 1% salt, ¾oz. potassium iodide per ton.

Arcady Complete Laying Ration
Wonderlas (molasses, peanut oil meal, soy bean oil meal, O. P. linseed oil meal), animal liver meal, fish meal, ground corn, wheat middlings, wheat bran, oat meal, alfalfa leaf meal, fine grd. oats, meat scraps, condensed buttermilk, fortified cod liver oil containing 400 units Vitamin D and 3000 units Vitamin A per gram, cold pressed wheat germ oil, steamed bone meal, 1% calcium carbonate from limestone, 1% salt, 1½ oz. potassium iodide per ton.

Arcady Growing Mash
Wonderlas (molasses, peanut oil meal, soy bean oil meal, O. P. linseed oil meal), animal liver meal, fish meal, meat scraps, condensed buttermilk, corn gluten feed, corn meal, wheat bran, wheat middlings, alfalfa leaf meal, fortified cod liver oil containing 400 units Vitamin D and 3000 units Vitamin A per gram, cold pressed wheat germ oil, ground oats, bone meal, 1% calcium carbonate from limestone, ½ of 1% salt, 1½ oz. potassium iodide per ton.

Arcady Laying Mash
Wonderlas (molasses, peanut oil meal, soy bean oil meal, O. P. linseed oil meal), animal liver meal, fish meal, meat scraps, condensed buttermilk, oat meal, corn meal, corn gluten feed, alfalfa leaf meal, fine ground oats, wheat bran, wheat middlings, fortified cod liver oil containing 400 units Vitamin D and 3000 units Vitamin A per gram, cold pressed wheat germ oil, bone meal, 1% calcium carbonate from limestone, ½ of 1% salt, 1½ oz. potassium iodide per ton.

Arcady 24% Open Formula Production Ration
Wheat bran, hominy feed, O. P. linseed oil meal, ground oats, cottonseed meal, corn gluten meal, corn gluten feed, distillers' corn dried grains, soy bean oil meal, molasses, 1% bone meal, 1% calcium carbonate from limestone, 1% salt.

Arcady 20% Open Formula Production Ration
Wheat bran, hominy feed, O. P. linseed oil meal, ground white oats, corn gluten feed, cottonseed meal, corn gluten meal, distillers corn dried grains, molasses, 1% bone meal, 1% calcium carbonate from limestone, 1% salt.

Arcady Sweet 16 Dairy Feed
Wheat bran, soy bean oil meal, corn gluten meal, O. P. linseed oil meal, distillers' corn dried grains, brewers' dried grains, corn gluten feed, cleaned ground & bolted wheat screenings, ground & bolted oat mill feed (oat hulls, oat shorts, oat middlings), cottonseed meal, wheat germ oil, molasses, 1% calcium carbonate from limestone, ½ of 1% salt.

W. E. Atkinson Co.

Weaco Laying Mash
Corn meal, bran middlings, ground oats, meat scraps, gluten feed, dried skim milk, alfalfa leaf meal, fish meal, calcium carbonate, salt, cod liver oil, soy bean oil meal.

E. W. Bailey & Co.

Bailey's Capital Dairy Ration
Corn gluten feed, linseed oil meal, hominy feed, 43% cottonseed meal, ground oats, wheat bran, corn meal, soy bean meal, edible bone meal, calcium carbonate, fine salt and molasses.

Bailey's Favorite Dairy Ration
White hominy feed, cottonseed meal, linseed oil meal, corn meal, ground oats, wheat bran, soybean meal, corn gluten feed, standard wheat middlings, edible bone meal, calcium carbonate, fine salt and molasses.

Bailey's 20 Special
Gluten feed, soybean meal, cottonseed meal, standard wheat middlings, wheat bran, corn meal, oat-meal mill by-products (oat middlings, oat hulls, oat shorts), molasses, salt, edible bone meal, calcium carbonate.

Bailey's Pennant Complete Starter & Broiler
Dried skim milk, fine ground oats, fine ground barley, meat scraps, fish meal, soybean oil meal, wheat std. midds, wheat bran, yellow corn meal, dehydrated alfalfa meal, salt, calcium carbonate, bone meal, charcoal, manganese sulphate, fortified cod liver oil.

Bailey's Pennant Laying Mash
Dried skim milk, dried milk albumen, feeding oatmeal, fine ground oats, fine ground barley, meat scraps, fish meal, blood flour, soybean oil meal, wheat reddog flour, wheat std. midds, wheat bran, yellow corn meal, corn gluten feed, dehydrated alfalfa meal, locust bean meal, rice polishings, salt, calcium carbonate, bone meal, charcoal, potassium iodide, manganese sulphate, fortified cod liver oil, wheat germ oil.

Barber & Bennett, Inc.

Big Ben 20% Dairy Feed
Soybean oil meal, cottonseed meal, brewers' dried grains, corn gluten feed, wheat bran, babassu oil meal, corn meal, ground heavy barley, ground screenings from wheat, corn, oats and barley, cane molasses, calcium carbonate from limestone, 1% salt, potassium iodide, not less than .0017% iodine.

Double Value 20% Dairy Feed
Ground heavy oats, ground heavy barley, hominy feed or corn meal, soybean oil meal, cottonseed meal, corn distillers' grains, corn gluten feed, brewers' dried grains, wheat bran (may contain mill run screenings), babassu oil meal, cane molasses, calcium carbonate from limestone, salt.

Fort Orange Chic-Razer Mash
Dried skim milk, meat scraps, fish meal, dried whey, alfalfa leaf meal, ground hulled oats, corn meal, pulverized heavy oats, soybean oil meal, pure wheat bran, wheat flour middlings, cod liver oil, calcium carbonate from limestone, ½ of 1% salt, potassium iodide, not less than .0017% iodine, manganese sulphate.

Fort Orange 20% Dairy Feed
Ground heavy oats, ground heavy barley, hominy feed or corn meal, linseed oil meal, soybean oil meal, cottonseed meal, corn distillers' grains, brewers' dried grains, corn gluten feed, wheat bran (may contain mill run screenings), dried beet pulp, cane molasses, calcium carbonate from limestone, steamed bone meal, 1% salt, potassium iodide, not less than .0017% iodine.

Fort Orange Golden Test Ration
Crushed heavy oats, corn meal or hominy, corn distillers grains, wheat bran, dried beet pulp, linseed oil meal (pea size), soy bean oil meal (pea size), corn gluten feed, cane molasses, steamed bone meal, potassium iodide, not less than .0017% iodine, 1% salt.

Fort Orange Growing Mash
Dried skim milk, meat scraps, fish meal, dried whey, dehydrated alfalfa meal, alfalfa leaf meal, corn meal, pulverized heavy oats, ground heavy barley, soybean oil meal, wheat bran (may contain mill run screenings), wheat flour middlings, steamed bone meal, cod liver oil, calcium carbonate from limestone, 1% salt, potassium iodide, not less than .0035% iodine, manganese sulphate.

Fort Orange Laying Mash
Dried skim milk, meat scraps, fish meal, dehydrated alfalfa meal, alfalfa leaf meal, corn meal, pulverized heavy oats, ground heavy barley, soy bean oil meal, wheat bran (may contain mill run screenings), wheat flour middlings, steamed bone meal, cod liver oil, calcium carbonate from limestone, 1% salt, potassium iodide, not less than .0035% iodine.

Beacon Milling Co., Inc.

Beacon Sweet "24"
Old process linseed oil meal, soy bean oil meal, corn gluten meal, cottonseed meal, corn gluten feed, corn distillers dried grains, wheat bran, wheat middlings, ground oats, ground barley, molasses, 1% salt, 1% calcium carbonate, 1% steamed bone meal.

Beacon "20"
Old process linseed oil meal, cottonseed meal, soy bean oil meal, corn gluten feed, corn gluten meal, corn meal, wheat bran, wheat middlings, corn distillers dried grains, ground oats, ground barley, 1% salt, 1% steamed bone meal.

Beacon Sweet "20"
Old process linseed oil meal, soy bean oil meal, corn distillers dried grains, cottonseed meal, wheat bran, wheat middlings, corn gluten meal, corn gluten feed, ground barley, corn meal, ground oats, molasses, 1% salt, 1% steamed bone meal.

Beacon "16"
Old process linseed oil meal, cottonseed meal, corn distillers dried grains, soy bean oil meal, corn gluten feed, corn meal, wheat bran, wheat middlings, crushed oats, ground barley, molasses, 1% salt, 1% steamed bone meal.

Beacon Battery Broiler Feed
Dried skimmilk, liver meal, meat scrap, fish meal, ground yellow corn, pulverized heavy oats, pulverized heavy barley, wheat bran, wheat red dog, corn gluten meal, dehydrated alfalfa leaf meal, wheat germ meal, fortified cod liver oil, 2% calcium carbonate, ½% salt, anhydrous manganese sulphate 35 p. p. m.

Beacon Battery Laying Ration
Dried skimmilk, dried buttermilk, liver meal, fish meal, meat scrap, dehydrated alfalfa leaf meal, pulverized heavy oats, pulverized heavy barley, wheat bran, wheat flour middlings, corn meal, wheat germ meal, fine charcoal, ½% fine salt, fortified cod liver oil, 2% calcium carbonate, anhydrous manganese sulphate 45 p. p. m.

Beacon Breeders Mash
Dried skimmilk, dried buttermilk, liver meal, meat scrap, fish meal, dehydrated alfalfa leaf meal, corn meal, pulverized heavy oats, pulverized heavy barley, wheat bran, wheat flour middlings, wheat germ meal, fortified cod liver oil, ½% fine salt, 3% calcium carbonate, 1% protozyme (an enzyme supplying product derived from biochemically processed cereals), anhydrous manganese sulphate 70 p. p. m., lactoflavin concentrate.

Beacon Broiler Feed
Dried skimmilk, liver meal, meat scrap, fish meal, ground yellow corn, pulverized heavy oats, wheat bran, wheat red dog, wheat germ meal, soy bean oil meal, corn gluten meal, dehydrated alfalfa leaf meal, fortified cod liver oil, 2½% calcium carbonate, ½% salt, anhydrous manganese sulphate 35 p. p. m.

Beacon C-C Pellets (mfg. under U. S. Patent 2156107)
Dried skimmilk, ground yellow corn, liquid petrolatum, sulphur sublimatum, pulverized heavy barley, wheat bran, lactoflavin concentrate, fortified cod liver oil, ½% salt.

Beacon Complete Starting Ration
Dried skimmilk, liver meal, meat scrap, fish meal, ground yellow corn, ground hulled oats, pulverized heavy oats, pulverized heavy barley, wheat bran, wheat flour middlings, dehydrated alfalfa leaf meal, wheat germ meal, fortified cod liver oil, 2% calcium carbonate, ½% salt, anhydrous manganese sulphate 35 p. p. m.

Beacon Dairy Ration
Old process linseed oil meal, soy bean oil meal, corn gluten feed, corn distillers dried grains, ground barley, corn gluten meal, hominy feed, corn meal, cottonseed meal, ground oats, wheat bran, wheat middlings, 1% salt, 1% calcium carbonate, 1% steamed bone meal.

Beacon Duck Fattener
Meat scrap, corn meal, pulverized heavy barley, pulverized heavy oats, wheat bran, wheat middlings, wheat red dog, dehydrated alfalfa leaf meal, old process linseed oil meal, soy bean oil meal, 2% calcium carbonate, ¼% salt, anhydrous manganese sulphate 70 p. p. m.

Beacon "22" Egg Mash
Dried buttermilk, dried skimmilk, liver meal, meat scrap, fish meal, pulverized heavy barley, pulverized heavy oats, corn meal, dehydrated alfalfa leaf meal, wheat bran, wheat flour middlings, wheat germ meal, fortified cod liver oil, 3% calcium carbonate, ½% fine salt, 1% protozyme (an enzyme supplying product derived from biochemically processed cereals), anhydrous manganese sulphate 70 p. p. m.

Beacon Fleshing Pellets
Dried skimmilk, liver meal, pulverized heavy oats, pulverized heavy barley, dehydrated alfalfa leaf meal, wheat low grade flour, corn meal, corn oil meal, wheat germ meal, lactoflavin concentrate, fortified cod liver oil, 2½% calcium carbonate, 1% salt, anhydrous manganese sulphate 70 p. p. m.

Beacon "18" Growing Mash
Dried skimmilk, liver meal, meat scrap, fish meal, pulverized heavy oats, pulverized heavy barley, corn meal, wheat red dog, dehydrated alfalfa leaf meal, wheat bran, wheat flour middlings, wheat germ meal, fortified cod liver oil, 2% calcium carbonate, ½% salt, anhydrous manganese sulphate 70 p. p. m.

Beacon "16" Growing Mash
Dried skimmilk, liver meal, fish meal, meat scrap, pulverized heavy oats, corn meal, pulverized heavy barley, wheat bran, wheat flour middlings, dehydrated alfalfa leaf meal, wheat germ meal, fortified cod liver oil, 2% calcium carbonate, ½% salt, anhydrous manganese sulphate 70 p. p. m.

Beacon "20" Laying Mash
Dried buttermilk, dried skimmilk, liver meal, fish meal, meat scrap, corn meal, dehydrated alfalfa leaf meal, wheat bran, wheat flour middlings, pulverized heavy barley, pulverized heavy oats, wheat germ meal, fortified cod liver oil, 3% calcium carbonate, ½% salt, anhydrous manganese sulphate 70 p. p. m.

Beacon Test Cow Ration
Old process linseed oil meal, cottonseed meal, corn distillers dried grains, soy bean oil meal, corn gluten feed, corn meal, wheat bran, crushed oats, crushed barley, molasses, 1% salt, 1% steamed bone meal.

Beacon Turkey Fitting Ration
Old process linseed oil meal, soy bean oil meal, corn gluten meal, alfalfa meal, crushed barley, cracked corn, crimped oats, molasses, 1% salt.

Beacon Turkey Growing Feed
Dried skimmilk, liver meal, dehydrated alfalfa leaf meal, meat scrap, fish meal, wheat bran, wheat flour middlings, wheat red dog, corn gluten meal, soy bean oil meal, pulverized heavy oats, pulverized heavy barley, corn meal, wheat germ meal, fortified cod liver oil, 4% calcium carbonate, ½% salt, 1% protozyme (an enzyme supplying product derived from biochemically processed cereals), anhydrous manganese sulphate 70 p. p. m.

Beacon Turkey Starter
Dried skimmilk, liver meal, meat scrap, fish meal, dehydrated alfalfa leaf meal, wheat bran, wheat red dog, corn gluten meal, soy bean oil meal, pulverized heavy barley, ground yellow corn, pulverized heavy oats, wheat germ meal, fortified cod liver oil, 3% calcium carbonate, ½% salt, 1% protozyme (an enzyme supplying product derived from biochemically processed cereals), anhydrous manganese sulphate 45 p. p. m.

Cayuga "16"
Old process linseed oil meal, cottonseed meal, gluten feed, ground oats, ground barley, corn meal, wheat bran, wheat middlings, soy bean oil meal, molasses, ground grain screenings, 1% salt, 1% steamed bone meal.

Berkshire Coal & Grain Co., Inc.

Berkshire Hills Sweet Dairy Feed
Wheat bran, cottonseed meal, gluten feed, linseed oil meal, corn meal, ground oats, brewers grain, cane molasses, calcium carbonate and salt.

Green Mountain Dairy Ration
Wheat Bran, cottonseed meal, corn gluten feed, linseed oil meal, corn meal, ground oats and barley, calcium carbonate and salt.

Green Mountain Laying Mash
Wheat bran, wheat middlings, linseed oil meal, corn meal, fine ground oats, alfalfa meal, meat scraps, bone meal, fish meal, dried skim milk, calcium carbonate, salt, Nopco XX concentrated cod liver oil.

"Gro Fast" Berkshire All Mash Complete Chick Starter and Grower
Wheat bran, wheat flour middlings, corn meal, oatmeal, linseed oil meal, alfalfa leaf meal, meat scraps, bone meal, dried buttermilk, dried skim milk, calcium carbonate, salt, Nopco XX concentrated cod liver oil.

Borden Grain Co.

Borden's Dairy Feed
Wheat Bran, wheat middlings, corn meal or (hominy), gluten meal, gluten feed, cottonseed meal, soy bean oil meal, linseed oil meal, calcium carbonate, iodine, bone meal, salt.

Borden's Laying Mash
Corn meal, wheat bran, wheat middlings, ground oat meal, dried milk, dried whey, lactoflavin concentrate, alfalfa leaf meal, fish meal, meat scrap, soy bean oil meal, cod liver oil, calcium carbonate, manganese, iodine, salt.

Borden's Starter and Growing Feed
Corn meal, wheat bran, wheat middlings, ground oat meal, alfalfa leaf meal, soy bean oil meal, meat scrap, fish meal, gluten meal, dried milk, dried whey, lactoflavin concentrate, cod liver oil, calcium carbonate, manganese, iodine, bone meal, salt.

Brown Bros.

Brown's Dairy Feed
Cottonseed meal, corn gluten feed, soybean oilmeal, ground oats, corn feed meal or hominy, wheat bran (not exceeding mill run of screenings), molasses, small percentage of salt, and calcium carbonate.

George B. Brown Corp.

Brown's Dairy Feed
Wheat bran, hominy feed, oat feed, cottonseed meal, corn meal, distillers grain, O. P. linseed oil meal, corn gluten feed, molasses, calcium carbonate, salt, bone meal.

Brown's Egg Mash
Corn meal, wheat middlings, wheat bran, ground oats, meat scraps, fish meal, dried milk, leaf alfalfa meal, charcoal, calcium carbonate, salt and Nopco XX fortified cod liver oil.

Community Feed Stores

Community–20 Dairy Ration
Corn distillers dried grains, 41% cotton seed meal, soya bean meal, corn gluten feed, hominy or yellow corn meal, pure ground oats, pure wheat bran, molasses, iodized salt, calcium carbonate.

Community Growing Mash
Greenmelk (dehydrated cereal grasses preserved in condensed buttermilk), yellow corn meal, white hominy, pulverized oats, pure wheat bran, wheat middlings, alfalfa meal, soybean meal, dried skim milk, meat scraps 50%, pure fish meal, salt, oyster shell meal, cod liver oil, manganese sulphate, Produlac (yeastified ingredient of corn distillers grains, dried).

Community Laying Mash
Greenmelk (dehydrated cereal grasses preserved in condensed buttermilk), yellow corn meal, white hominy, pulverized oats, pure wheat bran, gluten feed, wheat middlings, choice meat scraps 50%, pure fish meal, soybean meal, dried skim milk, alfalfa meal, salt, cod liver oil, oyster shell meal, manganese sulphate, Produlac (yeastified ingredient of corn distillers grains, dried).

Hilltop-20 Dairy Ration
41% cotton seed meal, soya bean feed, corn gluten feed, hominy or yellow corn meal, Vim oat mill feed, pure wheat bran, corn distillers dried grains, cane molasses, calcium carbonate, salt.

Cover & Palm Co.

C & P Grade A Laying Mash
Dried milk, meat scraps, fish meal, corn meal, wheat bran, wheat middlings, pulverized oats, soybean meal, alfalfa leaf meal, linseed meal, Vitadine, salt, calcium carbonate, potassium iodide, cod liver oil.

C & P Growing Mash
Dried milk, meat scraps, fish meal, pulverized oats, corn meal, wheat bran, wheat middlings, alfalfa leaf meal, soybean meal, Vitadine, hominy feed, salt, bone meal, potassium iodide, calcium carbonate, cod liver oil.

C & P Starter & Broiler Ration
Dried milk, meat scraps, fish meal, ground hulled oats, soybean meal, corn meal, wheat bran, wheat red dog flour, wheat middlings, pulverized oats, Vitadine, alfalfa leaf meal, salt, bone meal, potassium iodide, calcium carbonate, cod liver oil.

Delaware Mills, Inc.

Delaware Complete Egg Mash
Cod liver oil, dried skimmilk, dried whey, meat scraps, fish meal, dehydrated alfalfa meal, soybean oil meal, corn gluten feed, wheat bran, wheat middlings, corn meal, ground oats, ground barley, ground wheat, calcium carbonate, salt, potassium iodide and manganese.

Delaware Starter & Broiler Ration
Cod liver oil, dried skimmilk, meat scraps, fish meal, bone meal, dehydrated alfalfa leaf meal, corn meal, wheat bran, wheat middlings, wheat reddog, oatmeal, soybean oil meal, corn gluten feed, calcium carbonate, salt, potassium iodide, manganese.

Delaware Sweet 20% Dairy Feed
Cane molasses, linseed oil meal, corn gluten feed, corn gluten meal, cottonseed meal, soybean oil meal, corn distillers grains, peanut oil meal, wheat bran, wheat middlings, hominy feed, ground oats, ground barley, calcium carbonate, salt, and potassium iodide.

Indian Growing Mash
Cod liver oil, dried skimmilk, meat scraps, fish meal, bone meal, soybean oil meal, alfalfa meal, wheat bran, wheat middlings, corn meal, ground barley, ground oats, calcium carbonate, salt, potassium iodide, manganese.

Indian Laying Mash
Cod liver oil, dried skimmilk, meat scraps, fish meal, bone meal, soybean oil meal, corn gluten feed, alfalfa meal, wheat bran, wheat middlings, corn meal, ground barley, ground oats, calcium carbonate, salt, potassium iodide, manganese.

Indian Sweet 24% Dairy Feed
Cane molasses, corn gluten feed, linseed oil meal, cottonseed meal, soybean oil meal, peanut oil meal, corn meal, wheat bran, wheat middlings, corn distillers grains, reground oatfeed, calcium carbonate, salt, potassium iodide.

Indian Sweet 20% Dairy Feed
Cane molasses, linseed oil meal, corn gluten feed, cottonseed meal, soybean oil meal, peanut oil meal, wheat bran, wheat middlings, corn meal, reground oatfeed, corn distillers grains, calcium carbonate, salt, potassium iodide.

Frank Diauto

Diauto's Complete Broiler Ration
Feeding oat meal, meal, bran, red dog, 50% scraps, dried milk, alfalfa meal, cod liver oil, fish meal, salt, shell meal, dicalcium phosphate, manganese sulphate.

Diauto's Complete Laying Ration
Meal, bran, flour middlings, ground oats, milk, fish meal, 45% scraps, oyster shell meal, cod liver oil, salt, dicalcium phosphate, ground wheat, feeding oat meal, alfalfa meal, manganese sulphate.

Diauto's Dairy Ration
Gluten feed, corn meal, ground oats, bran, linseed meal, cotton seed meal, salt, middlings, dried molasses.

Diauto's Fancy Chick Growing Mash
Bran, middlings, pulverized ground oats, feeding oat meal, 50% scraps, dried milk, oyster shell meal, alfalfa meal, fish meal, salt, cod liver oil, corn meal, manganese sulphate.

Diauto's Special Egg Mash
Linseed meal, cod liver oil, meal, middlings, ground oats, feeding oat meal, oyster shell meal, 50% scraps, fish meal, milk, soy bean meal, ground barley, alfalfa meal, salt, bran, manganese sulphate.

F. Diehl & Son, Inc.

Diehl's Dairy Feed
Bran, brewers grains, cottonseed meal, gluten, linseed meal, meal or hominy, oatmeal mill by-products, ground oats, salt, cattle bone, calcite flour, soya bean.

Diehl's Dry Mash
Alfalfa, bran, cattle bone, charcoal, Diamond gluten, calcite flour, linseed meal, salt, meal, middlings, red dog, fish scraps, meat scraps, ground oats, dried milk, cottonseed, cod liver oil, soya bean.

Dietrich & Gambrill, Inc.

All Purpose Complete Ration, Starter—Grower—Layer
Ground corn, ground wheat, pulverized oats, flour middlings, wheat bran, alfalfa leaf meal, dried milk, dried whey, lactoflavin concentrate, meat scrap, fish meal, soy bean meal, bone meal, 1% calcium carbonate, 1% salt, cod liver oil, .0002% potassium iodide, .012% manganese sulphate.

D & G Dairy Feed
Cottonseed meal, soybean oil meal, linseed meal, gluten feed, corn feed meal, wheat bran, ground grain screenings, clipped oat by-products, oat middlings, oat shorts, oat hulls, molasses, 1% bone meal, 1% calcium carbonate, 1% salt, .0002% potassium iodide.

D & G Fleshing Pellets
Soybean oil meal, meat scrap, alfalfa meal, pulverized oats, pulverized barley, reddog flour, wheat middlings, corn oil meal, dried milk, dried whey, lactoflavin concentrate, cod liver oil, bone meal, 1% calcium carbonate, 1% salt, .0002% potassium iodide, .012% manganese sulphate, corn meal.

D & G Poultry Conditioning Ration
Cracked wheat, fine chick corn, corn meal, reddog, pulverized oats, wheat bran, alfalfa leaf meal, dried milk, dried whey, lactoflavin concentrate, fish meal, meat scrap, soybean meal, grit, bone meal, calcium carbonate, salt, mineral oil, peanut oil, cod liver oil, .0002% potassium iodide, .012% manganese sulphate.

Frederick Dairy Feed
Cottonseed meal, soybean oil meal, gluten feed, dried brewers grains, wheat bran, corn feed meal, ground grain screenings, clipped oat by-products, oat middlings, oat shorts, oat hulls, molasses, 1% bone meal, 1% calcium carbonate, 1% salt, .0002% potassium iodide.

Frederick Laying Mash
Wheat bran, wheat middlings, corn feed meal, pulverized oats, ground barley, gluten meal, meat scrap, fish meal, alfalfa leaf meal, soy bean meal, bone meal, 1% calcium carbonate, 1% salt, dried milk, dried whey, lactoflavin concentrate, .0002% potassium iodide, cod liver oil, .012% manganese sulphate.

Gambrill's Growing Mash
Wheat bran, wheat middlings, corn feed meal, soy bean meal, pulverized oats, oat meal, gluten meal, meat scrap, fish meal, dried milk, dried whey, lactoflavin concentrate, cod liver oil, alfalfa leaf meal, bone meal, 1% calcium carbonate, 1% salt, .0002% potassium iodide, .012% manganese sulphate.

Pen Mar Dairy Feed
Gluten feed, cottonseed meal, linseed meal, soy bean oil meal, dried brewers grains, ground oats, corn feed meal, wheat bran, wheat middlings, molasses, 1% calcium carbonate, 1% bone meal, 1% salt, .0002% potassium iodide, corn distillers grains.

East Bridgewater Farmers Exchange, Inc.

Exchange Dairy Feed
Old process linseed meal, cottonseed meal, corn gluten meal, corn gluten feed, corn distillers dried grains, yellow corn meal or hominy feed, ground oats, dried beet pulp, soybean oil meal, wheat bran, wheat standard middlings, brewers dried grains, steamed bone meal, cane molasses, salt.

Exchange Growing Feed
Fortified cod liver oil, dried skimmed milk, meat scraps, fish meal, alfalfa leaf meal, yellow corn meal, wheat bran, wheat standard middlings, ground oats, calcium carbonate, salt, ground barley, soybean oil meal, manganese sulphate.

Exchange Mash Feed
Fortified cod liver oil, dried skimmed milk, meat scraps, fish meal, alfalfa leaf meal, yellow corn meal, wheat bran, wheat standard middlings, ground oats, calcium carbonate, salt, soybean oil meal, ground barley, manganese sulphate.

Eastern Grain Co.

Eastern 24% Dairy Ration—Sweetened
Old process linseed meal, soybean oil meal, cottonseed meal, corn gluten meal, corn gluten feed, corn distillers dried grains, brewers dried grains, yellow corn meal, ground oats, ground barley, wheat bran, wheat standard middlings, cane molasses, calcium carbonate, salt.

Eastern 20% Dairy Ration Sweetened
Old process linseed meal, soybean oil meal, cottonseed meal, corn gluten meal, corn gluten feed, corn distillers dried grains, brewers dried grains, yellow corn meal, ground oats, ground barley, wheat bran, wheat standard middlings, cane molasses, calcium carbonate, salt.

Eastern States Farmers' Exchange

Eastern States All-Mash Breeder
Yellow corn meal, wheat bran, wheat flour middlings, ground oats, 50% protein meat scraps, 58% protein fish meal, alfalfa leaf meal, ground barley, 41% protein soybean oil meal, oyster shell meal, corn gluten meal, dicalcium phosphate, iodized salt, fortified sardine oil with 1% wheat germ oil, manganese sulphate, lactoflavin supplement (dried whey, dried skimmed milk, soybean oil meal, and lactoflavin concentrate).

Eastern States All-Mash Egg
Yellow corn meal, wheat flour, middlings, wheat bran, ground oats, ground barley, 50% protein meat scraps, 58% protein fish meal, alfalfa leaf meal, 41% protein soybean oil meal, oyster shell meal, corn gluten meal, iodized salt, fortified sardine oil, manganese sulphate.

Eastern States Breeder
Yellow corn meal, ground oats, wheat flour middlings, wheat bran, 50% protein meat scraps, 58% protein fish meal, alfalfa leaf meal, ground barley, 41% protein soybean oil, oyster shell meal, corn gluten meal, dicalcium phosphate, iodized salt, fortified sardine oil with 1% wheat germ oil, manganese sulphate, lactoflavin supplement (dried whey, dried skimmed milk, soybean oil meal and lactoflavin concentrate).

Eastern States Egg Mash
Yellow corn meal, wheat bran, wheat flour middlings, ground oats, ground barley, 50% protein meat scraps, 58% protein fish meal, 41% protein soybean oil meal, alfalfa leaf meal, oyster shell meal, corn gluten meal, iodized salt, fortified sardine oil, manganese sulphate.

Eastern States Fulpail Dairy Ration 20%
Yellow corn feed meal, ground oats, wheat bran, 41% protein soybean oil meal, corn distillers dried grains, cane molasses, 41% protein cottonseed meal, prime quality, corn gluten feed, 20% coconut oil meal, babassu kernel oil meal, wheat germ oil meal, dicalcium phosphate, iodized salt.

Eastern States Highland 20
Oat mill feed (oat hulls, oat shorts, and oat middlings), 41% protein soybean oil meal, corn gluten feed, hominy feed, cane molasses, brewers dried grains, 20% coconut oil meal, wheat bran, corn distillers dried grains, babassu kernel oil meal, 41% protein cottonseed meal, prime quality, wheat standard middlings, wheat germ oil meal, calcium carbonate, iodized salt.

Eastern States Highland 16
Hominy feed, oat mill feed (oat hulls, oat shorts, and oat middlings), cane molasses, brewers dried grains, wheat bran, corn gluten feed, 20% coconut oil meal, 41% protein soybean oil meal, corn distillers dried grains, wheat standard middlings, 41% protein cottonseed meal, prime quality, babassu kernel oil meal, wheat germ oil meal, calcium carbonate, iodized salt.

Eastern States Milkmore Dairy Ration 24%
41% protein soybean oil meal, 41% protein cottonseed meal, prime quality, ground oats, wheat bran, corn distillers dried grains, cane molasses, 20% coconut oil meal, yellow corn feed meal, corn gluten feed, babassu kernel oil meal, wheat germ oil meal, dicalcium phosphate, iodized salt.

Eastern States Sixteen
Yellow corn feed meal, ground oats, wheat bran, corn distillers dried grains, cane molasses, corn gluten feed, 41% protein soybean oil meal, 20% coconut oil meal, 41% protein cottonseed meal, prime quality, babassu kernel oil meal, wheat germ oil meal, dicalcium phosphate, iodized salt.

Eastern States Starting & Broiler
Yellow corn meal, wheat flour middlings, wheat bran, ground oat groats, alfalfa leaf meal, 50% protein meat scraps, 58% protein fish meal, 41% protein soybean oil meal, cane molasses, corn gluten meal, dried whey, dried skimmed milk, oyster shell meal, iodized salt, dicalcium phosphate, fortified sardine oil with 2% wheat germ oil, manganese sulphate.

Eastern States Supplement Feed 32%
41% protein cottonseed meal, prime quality, 41% protein soybean oil meal, distillers corn dried grains, 32% protein old process linseed meal, corn gluten feed, cane molasses, wheat bran, dicalcium phosphate, iodized salt.

M. W. Ellis

The Ellis Dairy Feed
Corn meal, wheat middlings, wheat bran, gluten meal, hominy feed, gluten feed, corn distillers grains, cottonseed meal, oil meal, ground oats, calcite flour, salt and edible bone meal.

The Ellis Poultry Mash
Wheat bran, wheat middlings, hominy feed, gluten, corn meal, rolled oats or feeding oatmeal, alfalfa leaf meal, cod liver oil, beef scraps, dried skim milk or buttermilk, edible bone meal, salt, charcoal and calcite flour.

The Ellis Special Dairy Feed
Hominy feed, wheat middlings, wheat bran, gluten meal, gluten feed, cotton seed meal, Sugared Vim feed, alfalfa meal, calcite flour, salt.

Elmore Milling Co., Inc.

Elmore Chixsaver
Dried skim milk, wheat flour middlings, wheat bran, corn meal, dehydrated alfalfa leaf meal, oat flour, meat & bone meal, fish meal, cod liver oil, cod liver meal, corn gluten meal, soybean oil meal, manganesed oyster shell flour, fine table salt.

Elmore Complete Laying Ration
Dehydrated alfalfa leaf meal, cod liver oil, corn meal, fish meal, wheat middlings, dried skim milk, pulverized heavy oats, meat scraps, wheat bran (may contain mill run screenings), manganesed oyster shell flour, cod liver meal, ground barley, soybean oil meal, gluten meal, salt.

Elmore Complete Starter-Broiler
Corn gluten meal, yellow corn meal, wheat bran, wheat middlings, oat meal flour, meat and bone meal, dried buttermilk, dehydrated alfalfa leaf meal, fish meal, soybean oil meal, cod liver oil, manganesed oyster shell flour, salt.

Elmore Egg Mash
Dried skim milk, meat meal, second clear wheat flour, pure ground oats, wheat middlings, corn meal (No. 2 yellow), wheat bran, dehydrated alfalfa leaf meal, fish meal, bone meal, cod liver oil, soybean oil meal, manganesed oyster shell flour, salt.

Elmore Fleshing Pellets
Corn meal, corn oil meal, pulverized heavy oats, standard wheat middlings, low grade wheat flour, corn gluten meal, soybean oil meal, dried skim milk, cod liver oil, salt, meat scraps.

Elmore Growing Mash
Dried buttermilk, meat meal, bone meal, wheat middlings, wheat bran, low grade wheat flour, dehydrated alfalfa leaf meal, corn meal, pulverized oats, corn gluten meal, fish meal, manganesed oyster shell flour, cod liver oil, ground barley, soybean oil meal, salt.

Elmore M. A. C. Laying Mash
Dehydrated alfalfa leaf meal, wheat bran (may contain mill run screenings), corn meal, fish meal, wheat middlings, dried skim milk, ground heavy oats, meat scraps, manganesed oyster shell flour, cod liver oil, soybean oil meal, salt.

Elmore Milk Grains "Twenty-Four"
Corn distillers grains, wheat bran, old process oil meal, corn meal or hominy feed, barley malt sprouts, corn gluten feed, cotton seed meal, dried brewers grains, molasses, soybean oil meal, calcium carbonate, and salt.

Elmore Milk Grains "Twenty"
Wheat bran, dried brewers grains, barley malt sprouts, cotton seed meal, soybean oil meal, hominy feed, cane molasses, corn distillers grains, corn gluten feed, linseed oil meal, dried tomato pulp, wheat middlings, calcium carbonate, salt.

Elmore Milk Grains "Sixteen"
Corn distillers grains, wheat bran, wheat middlings, old process oil meal, corn meal or hominy feed, barley malt sprouts, corn gluten feed, cotton seed meal, dried brewers grains, cane molasses, calcium carbonate, salt.

Elmore Turkey Finisher (Fattener)
Yellow corn meal, wheat bran, wheat middlings, ground oats, ground barley, dehydrated alfalfa leaf meal, soybean oil meal, corn gluten meal, dried skim milk, meat scraps, manganesed oyster shell flour, salt.

Elmore Turkey Starting Mash
Yellow corn meal, wheat bran, wheat middlings, pulverized heavy oats, wheat germ meal alfalfa leaf meal, soybean oil meal, corn gluten meal, dried skim milk, meat scraps, fish meal, manganesed oyster shell flour, cod liver oil, cod liver meal, salt.

Granger 20% Dairy Ration
Wheat bran, wheat middlings, cotton seed meal, corn gluten feed, corn meal or hominy feed, soybean oil meal, cane molasses, ground oats, dried brewers grains, calcium carbonate, salt.

John W. Eshelman & Sons

Eshelman Conestoga 20 Dairy Feed
Cottonseed meal, wheat bran, cane molasses, corn gluten feed, brewers dried grains, corn distillers dried grains, o. p. soybean oil meal, o. p. linseed oil meal, reground grain screenings from wheat, 1% bone meal, 1% calcium carbonate, 1% salt.

Eshelman Pennsy 16 Dairy Feed
Wheat bran, cottonseed meal, cane molasses, corn gluten feed, brewers dried grains, o. p. linseed oil meal, o. p. soybean oil meal, reground grain screenings from wheat, oat mill feed (oat middlings, oat hulls, oat shorts), 1% bone meal, 1% calcium carbonate, 1% salt.

Eshelman Pennsy Laying Mash
Corn meal, wheat middlings, meat scrap, wheat bran, ground oats, dehydrated alfalfa meal, o. p. soybean oil meal, cane molasses, fish meal, corn gluten feed, o. p. linseed oil meal, fortified cod liver oil, 2½% calcium carbonate, 1/80% manganese sulphate, ½% salt.

Eshelman Red Rose 24 Dairy Feed
Cottonseed meal, wheat bran, corn gluten feed, cane molasses, corn gluten meal, ground oats, brewers dried grains, corn distillers dried grains, corn meal, o. p. linseed oil meal, o. p. soybean oil meal, wheat germ oil, 1% bone meal, 1% calcium carbonate, 1% salt.

Eshelman Red Rose 20 Dairy Feed
Wheat bran, cottonseed meal, ground oats, corn gluten feed, cane molasses, brewers dried grains, corn distillers dried grains, corn meal, o. p. linseed oil meal, o. p. soybean oil meal, wheat germ oil, 1% bone meal, 1% calcium carbonate, 1% salt.

Eshelman Red Rose Laying Mash
Wheat middlings, corn meal, meat scrap, wheat bran, corn gluten feed, ground oats, o. p. linseed oil meal, fish meal, o. p. soybean oil meal, hominy feed, dehydrated alfalfa meal, dried skimmed milk, dried whey, fortified cod liver oil, 2% calcium carbonate, 1/80% manganese sulphate, ½% salt.

Farm Service Co.

C Growing Mash
Corn meal, mixed feed, ground oats, meat scraps, dried milk, fish scraps, alfalfa meal, calcium carbonate, salt, cod liver oil.

C Laying Mash
Corn meal, mixed feed, corn gluten feed, linseed oil meal, meat scraps, alfalfa meal, ground oats, soya bean oil meal, calcium carbonate, bone meal, fish meal, salt.

Diamond A Dairy Ration
Corn meal, hominy, linseed oil meal, corn gluten feed, wheat bran, dried brewers grains, corn gluten meal, cottonseed meal, stock feed, calcium carbonate, soya bean oil meal, salt.

Diamond C Dairy Feed
Wheat bran, wheat middlings, corn meal, hominy, cottonseed meal, linseed oil meal, beet pulp, corn gluten feed, corn gluten meal, soya bean oil meal, brewers grains, calcium carbonate, salt.

Farm Service Chick Starter
Wheat bran, flour middlings, corn meal, feeding oatmeal, meat scraps, fish meal, dried milk, dried whey, dehydrated alfalfa leaf meal, soya bean oil meal, calcium carbonate, salt, fortified cod liver oil, manganese sulphate.

Farm Service 24% Dairy Feed
Corn meal, hominy, ground oats, soya bean oil meal, dried brewers grains, wheat bran, corn gluten feed, cottonseed meal, linseed oil meal, molasses, ground barley, calcium carbonate, bone meal, salt, malt feed, distillers grains.

Farm Service 20% Dairy Feed
Corn meal, hominy, soya bean oil meal, corn distillers grains, dried brewers grains, corn gluten feed, wheat bran, cottonseed meal, linseed oil meal, beet pulp, molasses, oat middlings, calcium carbonate, bone meal, salt, malt feed.

Farm Service Fleshing Pellets
Corn meal, wheat middlings, wheat bran, soya bean oil meal, ground barley, corn gluten feed, ground oats, dehydrated alfalfa leaf meal, dried whey, dried milk, fish meal, meat scraps, calcium carbonate, salt, fortified cod liver oil, manganese sulphate.

Farm Service Laying Mash
Corn meal, pulverized oats, dehydrated alfalfa leaf meal, wheat bran, wheat middlings, corn gluten feed, ground barley, soya bean oil meal, meat scraps, calcium carbonate, fish meal, dried milk, dried whey, salt, manganese sulphate, fortified cod liver oil.

Farm Service Starter & Broiler Ration
Corn meal, wheat bran, wheat middlings, ground barley, soya bean oil meal, pulverized oats, corn gluten meal, dehydrated alfalfa leaf meal, dried milk, dried whey, meat scraps, fish meal, calcium carbonate, salt, fortified cod liver oil, manganese sulphate.

Lawrence Cow Ration
Wheat bran, corn meal, hominy, ground oats, pulverized oats, corn gluten feed, cottonseed meal, linseed oil meal, dried brewers grains, soya bean oil meal, molasses, calcium carbonate, salt.

N E C Laying Mash
Corn meal, wheat bran, wheat middlings, ground oats, alfalfa meal, soya bean oil meal, dried skim milk, meat scraps, fish meal, calcium carbonate, salt, fortified cod liver oil, manganese sulphate.

First National Stores, Inc.

Henfield Egg Mash
Fortified cod liver oil, meat scraps, fish meal, dried skim milk, alfalfa meal, pulverized oats, hominy or corn meal, wheat middlings, wheat bran, wheat flour middlings, corn gluten feed, soya bean oil meal, 1% steamed bone meal, 1% calcium carbonate, ½ of 1% salt.

Flory Milling Co., Inc.

Flory's 24% Special Dairy Feed
Cottonseed meal, corn gluten feed, ground white oats, corn gluten meal, wheat bran (containing screenings not exceeding mill run), cocoanut oil meal, corn distillers grains, dried brewers grains, malt sprouts, molasses, soybean meal, alfalfa meal, corn meal, standard wheat middlings, essential minerals (calcium carbonate, calcium phosphate, calcium sulphate, iron sulphate, sulphur, iodine and salt), dried tomato pulp.

Flory's 20% Special Dairy Feed
Cottonseed meal, gluten meal, gluten feed, corn meal, alfalfa meal, ground oats, cocoanut oil meal, soybean meal, corn distillers grains, dried brewers grains, malt sprouts, molasses, wheat bran (containing screenings not exceeding mill run), essential minerals (calcium carbonate, calcium phosphate, calcium sulphate, iron sulphate, sulphur, iodine and salt), dried tomato pulp.

Golden Egg Growing Mash
Soybean oil meal, corn meal, ground oats, meat scrap, choice alfalfa meal, ground barley, fish meal, wheat bran, standard wheat middlings, tomato pulp, cane molasses, dried skimmilk, dried whey, lactoflavin concentrate, essential minerals (calcium carbonate, calcium phosphate anhydrous manganese sulphate, iodine and salt), Vitamin A and D oil.

Golden Egg Laying Mash
Dried skimmilk, dried whey, lactoflavin concentrate, meat scrap, fish meal, dried tomato pulp, soybean meal, yellow corn meal, wheat flour middlings, ground barley, wheat bran, ground white oats, choice alfalfa meal, corn gluten meal, Vitamin A and D oil, essential minerals (calcium carbonate, calcium phosphate, anhydrous manganese sulphate, iodine and salt).

Record Dairy Feed
O. P. oil meal, cottonseed meal, soybean meal, corn gluten feed, standard wheat middlings, corn meal, wheat bran (containing screenings not exceeding mill run), corn distillers grains, dried brewers grains, malt sprouts, ground oats, molasses, alfalfa meal, cocoanut oil meal, essential minerals (calcium carbonate, calcium phosphate, calcium sulphate, iron sulphate, sulphur, iodine and salt), dried tomato pulp.

Sunray Laying Mash
Dried skimmilk, dried whey, lactoflavin concentrate, corn gluten feed, corn gluten meal, soybean meal, meat scrap, alfalfa meal, wheat bran, standard wheat middlings, ground oats, ground barley, corn meal, cane molasses, fish meal, Vitamin A and D oil, essential minerals (calcium carbonate, calcium phosphate, anyhdrous manganese sulphate, iodine, and salt).

Fred A. Fountain, Inc.

Fountain's B Starting and Broiler Ration
Yellow corn meal, bran, middlings, alfalfa leaf meal, beef scrap, gluten, second clear flour, fine ground heavy oats, white fish meal, dry buttermilk or dry skim milk, soy bean oil meal, calcium carbonate, table salt, fortified cod liver oil.

Fountain's Breeder Mash
Dry buttermilk or dry skim milk, beef scraps, white fish meal, alfalfa leaf meal, ground oat groats, second clear flour, bran, middlings, yellow corn meal, gluten, calcium carbonate, table salt, fortified cod liver oil.

Fountain's Growing Mash
Dry buttermilk or dry skim milk, meat scraps, alfalfa leaf meal, yellow corn meal, second clear flour, fine ground heavy oats, bran, middlings, soy bean oil meal, calcium carbonate, table salt, fortified cod liver oil, manganese sulphate.

Fountain's H Laying Mash
Dry skim milk, meat scraps, white fish meal, alfalfa leaf meal, fine ground heavy oats, second clear flour, bran, middlings, yellow corn meal, gluten, calcium carbonate, table salt, fortified cod liver oil, manganese sulphate.

Dean S. French

Special Mash or Poultry Feed
Wheat feed, corn meal, gluten, alfalfa meal, linseed meal, meat scraps, ground oats, ground bone, charcoal, salt, skim milk, and calcite.

Paul Fuller & Sons

Eggmaker
Dried skim milk, soy bean meal, alfalfa leaf meal, fine ground oats, feeding oat meal, standard wheat bran, fish meal, red dog flour, meat scraps, corn meal, gluten, salt, calcium carbonate.

J. B. Garland & Son, Inc.

Garland Complete Starting & Broiler Mash
Alfalfa leaf meal, fish meal, meat scraps, ground wheat, dried buttermilk, vitamin tested cod liver oil, ground barley, ground oats, corn meal, wheat bran, wheat middlings, calcium carbonate, manganese sulphate and salt.

Garland 24% Dairy Ration
Soybean oil meal, brewers dried grains, distillers dried grains, cottonseed meal, linseed oil meal, corn gluten feed, wheat bran, wheat middlings, malt sprouts, corn gluten meal, corn meal, fish meal, molasses, calcium carbonate and salt.

Garland 20% Dairy Ration
Soybean oil meal, brewers dried grains, linseed oil meal, cottonseed meal, corn gluten feed, distillers dried grains, malt sprouts, wheat bran, wheat middlings, corn meal, fish meal, molasses, calcium carbonate and salt.

Garland Growing Mash
Alfalfa leaf meal, fish meal, meat scraps, linseed oil meal, dried buttermilk, vitamin tested cod liver oil, wheat bran, wheat middlings, soybean oil meal, ground oats, ground wheat, corn meal, calcium carbonate, manganese sulphate and salt, (with or without cod liver oil).

Garland Laying Mash
Alfalfa leaf meal, soybean oil meal, fish meal, meat scraps, dried buttermilk, vitamin tested cod liver oil, linseed oil meal, wheat bran, wheat middlings, ground oats, ground wheat, corn meal, calcium carbonate, manganese sulphate and salt, (with or without cod liver oil).

Royal Complete Laying Ration
Corn meal, wheat bran, wheat middlings, ground oats, alfalfa leaf meal, meat scraps, fish meal, soybean oil meal, dried buttermilk, vitamin tested cod liver oil, calcium carbonate, manganese sulphate and salt.

Royal 24% Dairy Ration
Soybean oil meal, ground corn, ground oats, corn gluten feed, wheat and wheat bran processed, distillers dried grains, cottonseed meal, molasses, calcium carbonate and salt.

Royal 20% Dairy Ration
Distillers dried grains, corn gluten feed, soybean oil meal, wheat and wheat bran processed, cottonseed meal, ground corn, ground oats, molasses, calcium carbonate and salt.

Royal Dairy-Aide 20% Ration
Corn meal, wheat bran, soybean oil meal, cottonseed meal, corn gluten feed, ground oats, malt sprouts, molasses, calcium carbonate and salt.

Royal Laying Mash
Alfalfa meal, corn meal, ground oats, ground wheat, dried buttermilk, wheat bran, wheat middlings, vitamin tested cod liver oil, fish meal, meat scraps, linseed oil meal, soybean oil meal, calcium carbonate, manganese sulphate and salt.

Royal Worcester Complete Dairy Ration
Corn gluten feed, linseed oil meal, ground oats, wheat bran, wheat middlings, corn meal, cottonseed meal, soybean oil meal, distillers dried grains, dried beet pulp, bone meal, molasses, calcium carbonate and salt.

W. K. Gilmore & Sons, Inc.

Conference Mash
Yellow corn meal, standard wheat bran, wheat flour middlings, pure ground oats, meat scraps 50%, pure fish meal, alfalfa leaf meal, dried skim milk, calcite flour, cod liver oil, dicalcium phosphate, salt, soy bean meal.

Neponset Poultry Mash
Wheat bran, wheat middlings, corn meal, ground oats, alfalfa, beef scraps, fish scraps, linseed oil meal, corn gluten, ground rolled oats, calcite flour, dried skim milk, fine salt, soy bean meal.

Goode Grain Co.

Goode Laying Mash, Mass. Formula
Yellow corn meal, soy bean meal, wheat middlings, wheat bran, ground oats, meat scraps, fish meal, dried skim or buttermilk, alfalfa meal, calcium carbonate, salt, cod liver oil, Vitidine —a mineral concentrate.

Goode Starting & Growing Mash, New England Formula
Yellow corn meal, soy bean meal, wheat middlings, wheat bran, ground oats, meat scraps, fish meal, dried milk or buttermilk, alfalfa meal, calcium carbonate, salt, cod liver oil, with and without Vitidine—a mineral concentrate.

Grand Union Co.

Grand Union Laying Mash
Cod liver oil, dried skimmilk, dried buttermilk, meat scraps, soybean oil meal, corn feed meal, corn meal, ground oat meal, wheat standard bran, wheat standard middlings, alfalfa leaf meal, corn gluten feed, 2½% calcium carbonate from limestone and ½% salt.

D. H. Grandin Milling Co.

Grandin's 20 Dairy Feed
Cane molasses, cottonseed meal, soybean oil meal, linseed oil meal, corn gluten feed, corn distillers dried grains, wheat bran and wheat middlings (with mill run wheat screenings), yellow corn meal, hominy feed, ground oats, ground barley, steamed bone meal, calcium carbonate, salt and potassium iodide.

Grandin's Growing Mash
Fortified cod liver oil, dried buttermilk, dried whey, meat scraps, fish meal, soybean oil meal, corn gluten feed, dehydrated alfalfa leaf meal, wheat bran, wheat middlings, ground yellow corn, hominy feed, pulverized oats, ground barley, calcium carbonate, salt, potassium iodide, and manganese carbonate.

Grandin's Laying Mash
Fortified cod liver oil, dried buttermilk, dried whey, meat scraps, fish meal, soybean oil meal, corn gluten meal, corn gluten feed, dehydrated alfalfa leaf meal, wheat bran, wheat middlings, ground yellow corn, hominy feed, pulverized oats, ground barley, calcium carbonate, salt, potassium iodide, and manganese carbonate.

Grandin's Milk Maker
Dried beet pulp, cottonseed meal, soybean oil meal, linseed oil meal, corn gluten meal, corn gluten feed, corn distillers dried grains, wheat bran and wheat middlings (with mill run wheat screenings), yellow corn meal, hominy feed, ground oats, ground barley, steamed bone meal, calcium carbonate, salt and potassium iodide.

Grandin's Start-To-Finish Mash
Fortified cod liver oil, dried buttermilk, dried whey, meat scraps, fish meal, soybean oil meal, corn gluten feed, dehydrated alfalfa leaf meal, wheat bran, wheat middlings, ground wheat, ground yellow corn, hominy feed, pulverized oats, ground barley, calcium carbonate, salt, potassium iodide, and manganese carbonate.

Grandin's Twin Six Dairy Feed
Cane molasses, cottonseed meal, soybean oil meal, linseed oil meal, corn gluten meal, corn gluten feed, corn distillers dried grains, alfalfa meal, wheat bran and wheat middlings (with mill run wheat screenings), yellow corn meal, hominy feed, ground oats, ground barley, steamed bone meal, calcium carbonate, salt and potassium iodide.

Money Saver 20 Dairy Feed
Cane molasses, cottonseed meal, soybean oil meal, linseed oil meal, corn gluten feed, corn distillers dried grains, brewers dried grains, wheat bran, wheat middlings, ground wheat screenings, corn feed meal, ground oats, ground barley, steamed bone meal, calcium carbonate, salt and potassium iodide.

Money Saver Growing Mash
Fortified cod liver oil, dried buttermilk, dried whey, meat scraps, fish meal, soybean oil meal, corn gluten feed, alfalfa leaf meal, wheat bran, wheat middlings, yellow corn meal, corn feed meal, hominy feed, pulverized oats, ground barley, calcium carbonate, salt, potassium iodide, and manganese carbonate.

Great Atlantic & Pacific Tea Co.

Daily Milk Dairy Feed
Cleaned, ground and bolted screenings from wheat, oats, barley and flax; cane molasses, ground and bolted clipped oat by-product, corn gluten feed, cottonseed meal, wheat bran, soybean oil meal, old process linseed oil meal, corn gluten meal, wheat standard middlings, malt sprouts, calcium carbonate from limestone 1%, iodized salt 1%.

Hales & Hunter Co.

Morning Glory Egg Mash
Whole ground corn, ground oats, wheat bran, wheat standard middlings, soy bean oil meal, corn gluten feed, alfalfa meal, dried buttermilk, meat scraps, granulated charcoal ½%, ground limestone 1%, salt 1%, fortified cod liver oil (containing 3000 Vitamin A units and 400 Vitamin D chick units per gram).

Red Comb All-Mash
Ground corn, wheat bran, wheat standard middlings, corn gluten feed, meat scraps, alfalfa meal, soy bean oil meal, pulverized oats, fish meal, dried buttermilk, dried whey, calcium carbonate (ground limestone) 1%, salt ½%, granulated charcoal ¼%, manganese sulphate .0125%, fortified cod liver oil (containing 3000 Vitamin A units and 400 Vitamin D chick units per gram).

Red Comb All-Mash Grower
Ground corn, fine ground feeding oat meal, pulverized oats, wheat bran, wheat standard middlings, corn gluten feed, meat scraps, alfalfa meal, soy bean oil meal, fish meal, dried buttermilk, dried whey, calcium carbonate (ground limestone) 1%, salt ½%, granulated charcoal ¼%, manganese sulphate .0125%, fortified cod liver oil (containing 3000 Vitamin A units and 400 Vitamin D chick units per gram).

Red Comb Balancer
Dried buttermilk, dried whey, meat scraps, soy bean oil meal, corn gluten meal, corn gluten feed, alfalfa meal, wheat bran, wheat standard middlings, fish meal, calcium carbonate (ground limestone) 2%, salt 1%, granulated charcoal ½%, manganese sulphate .05%, fortified cod liver oil (containing 3000 Vitamin A units and 400 Vitamin D chick units per gram).

Red Comb Batry Fed Grower
Ground corn, feeding oat meal, wheat bran, wheat standard middlings, corn gluten feed, meat scraps, alfalfa meal, soy bean oil meal, pulverized oats, fish meal, dried buttermilk, dried whey, calcium carbonate (ground limestone) 1%, salt ½%, granulated charcoal ¼%, manganese sulphate .0125%, fortified cod liver oil (containing 3000 Vitamin A units and 400 Vitamin D chick units per gram).

Red Comb Batry Fed Layer
Ground corn, feeding oat meal, wheat bran, wheat standard middlings, corn gluten feed, meat scraps, alfalfa meal, soy bean oil meal, pulverized oats, fish meal, dried buttermilk, dried whey, calcium carbonate (ground limestone) 1%, salt ½%, granulated charcoal ¼%, manganese sulphate, .0125%, fortified cod liver oil (containing 3000 Vitamin A units and 400 Vitamin D chick units per gram).

Red Comb Broiler Mash
Ground corn, fine ground feeding oat meal, pulverized oats, wheat bran, wheat standard middlings, corn gluten meal, meat scraps, alfalfa meal, soy bean oil meal, fish meal, dried buttermilk, dried whey, calcium carbonate (ground limestone) 1%, salt 1%, granulated charcoal ½%, manganese sulphate .0125%, fortified cod liver oil (containing 3000 Vitamin A units and 400 Vitamin D chick units per gram).

Red Comb Chick Starter
Ground corn, ground oat groats, wheat bran, wheat standard middlings, corn gluten meal, meat scraps, alfalfa meal, soy bean oil meal, pulverized oats, fish meal, dried buttermilk, dried whey, calcium carbonate (ground limestone) 1%, salt ½%, granulated charcoal ½%, manganese sulphate .0125%, fortified cod liver oil (containing 3000 Vitamin A units and 400 Vitamin D chick units per gram).

Red Comb Egg Mash
Ground corn, feeding oat meal, wheat bran, wheat standard middlings, corn gluten feed, meat scraps, alfalfa meal, soy bean oil meal, pulverized oats, fish meal, dried buttermilk, dried whey, calcium carbonate (ground limestone) 1½%, salt 1%, granulated charcoal ½%, manganese sulphate .025%, fortified cod liver oil (containing 3000 Vitamin A units and 400 Vitamin D chick units per gram).

Red Comb Flushing Mash
Whole ground corn, ground barley, dried whey, wheat bran, dried buttermilk.

Red Comb Growing Mash
Ground corn, fine ground feeding oat meal, pulverized oats, wheat bran, wheat standard middlings, corn gluten feed, meat scraps, alfalfa meal, soy bean oil meal, fish meal, dried buttermilk, dried whey, calcium carbonate (ground limestone) 1½%, salt 1%, granulated charcoal ½%, manganese sulphate .025%, fortified cod liver oil (containing 3000 Vitamin A units and 400 Vitamin D chick units per gram).

Red Comb Sup-Pel
Fortified cod liver oil (containing 3000 Vitamin A units and 400 Vitamin D chick units per gram), green dehydrated alfalfa meal, dried buttermilk, dried whey, pulverized barley, wheat germ meal, soy bean oil meal.

Red Horn 20% Dairy Feed
Cottonseed meal, linseed oil meal, soy bean oil meal, corn distillers dried grains, wheat bran, corn gluten feed, corn gluten meal, malt sprouts, whole ground corn, crimped oats, molasses, salt 1%, calcium carbonate (ground limestone) 1%, corn germ oil meal, steamed bone meal 1%, potassium iodide .0003%.

Special Red Horn 20% Dairy Feed
Cottonseed meal, linseed oil meal, soy bean oil meal, corn distillers dried grains, wheat bran, corn gluten feed, corn gluten meal, malt sprouts, whole ground corn, crimped oats, ground and bolted screenings from wheat, barley and kafir corn, clipped oat by-product, molasses, salt 1%, calcium carbonate (ground limestone) 1%, corn germ oil meal, steamed bone meal 1%, potassium iodide .0003%.

D. Harbeck & Sons

Crusader All-Purpose Mash
Corn meal, bran, wheat middlings, ground oats, ground barley, ground wheat, meat scraps, fish meal, soya bean meal, gluten meal, alfalfa meal, buttermilk or dried skimmed milk, linseed oil meal, charcoal, salt, calcium carbonate, cod liver oil.

Special 1940 Mash
Bran, wheat middlings, corn meal, corn gluten meal, ground oats, ground barley, meat scraps, fish meal, alfalfa meal, soya bean meal, salt, calcium carbonate, cod liver oil.

Welcome Dairy Feed
Bran, beet pulp, cotton seed meal, corn gluten meal, ground oats, hominy or corn feed meal, oil meal, middlings, calcium carbonate, steamed bone meal 1%, salt 1%.

Welcome Growing Mash
Corn meal, bran, wheat middlings, ground oats, alfalfa meal, meat scraps, fish meal, buttermilk or dried skimmed milk, ground barley, hominy feed, oil meal, ground wheat, bone meal, calcium carbonate, salt, cod liver oil.

Welcome Laying Mash
Corn meal, bran, flour middlings, ground oats, meat scraps, fish meal, alfalfa meal, buttermilk or dried skimmed milk, salt, calcium carbonate, cod liver oil.

Welcome Starter & Broiler Ration
Corn meal, bran, wheat flour middlings, ground oat groats or feeding oat meal, buttermilk or dried skimmed milk, alfalfa meal, meat scraps, fish meal, shell flour, salt, cod liver oil.

D. B. Hodgkins' Sons

Hodgkins' Growing Mash
Corn meal, wheat bran, wheat middlings, flour middlings, ground oats, alfalfa meal, dried skim milk, soy bean oil meal, meat scraps, fish meal, oyster shell meal, salt and cod liver oil.

Hodgkins' Poultry Mash
Ground corn, oats, middlings and bran (with screenings not to exceed mill run), corn gluten feed, soy bean meal, corn gluten meal, ground meat scraps, calcium carbonate, dried skim milk or dried buttermilk, dairy salt, fish meal, alfalfa leaf meal and cod liver oil.

Horvitz Grain Co.

Mak-M-Lay Laying Mash
Cod liver oil, wheat bran, corn meal, gluten feed, ground oats, ground barley, red dog, wheat middlings, soybean meal, meat scraps, alfalfa leaf meal, dried skimmilk, calcium carbonate, charcoal.

Wantmore Dairy Ration
Hominy feed or corn meal, wheat bran, ground oats, gluten feed, gluten meal, linseed meal, cottonseed meal, wheat middlings, calcium carbonate, salt.

Wantmore Dairy with Beet Pulp
Hominy feed or corn meal, wheat bran, gluten feed, gluten meal, linseed meal, cottonseed meal, wheat middlings, salt, beet pulp, ground oats, calcium carbonate.

Wantmore 24% Sweetened Special Dairy Feed
Soybean oil meal, cottonseed meal, corn gluten feed, corn distillers dried grains, yellow corn meal or hominy feed, oat mill feed (oat hulls, oat shorts and oat middlings), wheat bran, wheat standard middlings, cane molasses, calcium carbonate, salt.

Wantmore 20% Sweetened Special Dairy Feed
Soybean oil meal, cottonseed meal, corn gluten feed, corn distillers dried grains, yellow corn meal or hominy feed, oat mill feed (oat hulls, oat shorts and oat middlings), wheat bran, wheat standard middlings, cane molasses, calcium carbonate, salt.

Jaquith & Co.

Dairy Ration
Wheat bran & middlings, cotton seed meal, oil meal, soya bean meal, salt, gluten feed, alfalfa, ground oats and corn, dried grains, minerals, molasses.

Growing Mash
Ground corn, wheat and oats, soya bean meal, meat and bone meal, salt, dried milk, alfalfa meal, oil meal, Exadol oil.

Laying Mash
Ground corn, oats and wheat, gluten feed, oil meal, meat scraps, dried milk, soya bean meal, alfalfa meal, Exadol oil, salt.

Kasco Mills, Inc.

Apex Complete Grower
Corn meal, pulverized oats, ground barley, wheat bran, wheat middlings, soybean oil meal, linseed oil meal, alfalfa meal, meat scrap, fish meal, bone meal, dried skim milk, dried whey, lactoflavin concentrate, ½ of 1% salt, calcite, tested cod liver oil.

Apex 20% Dairy Ration
Cottonseed meal, corn gluten feed, corn gluten meal, wheat bran, ground wheat screenings, oat mill feed (oat middlings, oat shorts and oat hulls), malt sprouts, dried brewers grains, corn distillers grains, cane molasses, 1% salt, 1% calcite, soybean oil meal.

Apex Growing Mash
Corn meal, pulverized oats, ground barley, wheat bran, wheat middlings, linseed oil meal, soybean oil meal, alfalfa meal, meat scrap, fish meal, bone meal, dried skim milk, dried whey, lactoflavin concentrate, ¾ of 1% salt, calcite, tested cod liver oil.

Beatsall Milk Grains
Wheat bran, wheat middlings, linseed oil meal, corn distillers grains, corn gluten feed, corn gluten meal, cottonseed meal, soybean oil meal, hominy feed, ¾ of 1% salt, 1% calcite, beet pulp, molasses.

Kasco All Mash Chick Starter
Wheat reddog, oatmeal, wheat middlings, wheat bran, corn meal, meat scrap, fish meal, bone meal, linseed oil meal, soybean oil meal, pulverized oats, dried skim milk, dried whey, lactoflavin concentrate, ½ of 1% salt, tested cod liver oil, calcite, alfalfa leaf meal, .0063% manganese sulphate.

Kasco All Mash Laying & Breeding Ration
Corn meal, pulverized oats, oatmeal, wheat bran, wheat middlings, wheat reddog, linseed oil meal, soybean oil meal, ground barley, meat scrap, bone meal, fish meal, dried skim milk, dried whey, lactoflavin concentrate, ½ of 1% salt, calcite, tested cod liver oil, alfalfa leaf meal, .0063% manganese sulphate.

Kasco Body Builder
Corn meal, corn germ meal, molasses, ground oatmeal, wheat bran, wheat middlings, wheat reddog, ground barley, linseed oil meal, alfalfa leaf meal, meat scrap, bone meal, fish meal, soybean oil meal, dried skim milk, dried whey, pulverized oats, tested cod liver oil, ½ of 1% salt, calcite.

Kasco Egg Producer
Wheat bran, wheat middlings, corn meal, linseed oil meal, soybean oil meal, pulverized oats, ground barley, meat scrap, bone meal, fish meal, dried skim milk, dried whey, lactoflavin concentrate, ¾ of 1% salt, calcite, .0125% manganese sulphate, tested cod liver oil, alfalfa meal.

Kasco 20% Milk Maker
Cottonseed meal, linseed oil meal, dried brewers grains, corn distillers grains, corn gluten feed, corn gluten meal, soybean oil meal, corn meal, wheat bran, wheat middlings, ground oats, ground barley, ¾ of 1% salt, 1% calcite, molasses, malt sprouts.

Kasco Open Formula 20% Dairy Ration
Wheat bran, wheat middlings, ground barley, ground oats, malt sprouts, dried brewers grains, corn distillers grains, corn gluten feed, soybean oil meal, 41% cottonseed meal, hominy feed, cane molasses, salt, calcite.

Kasco Poultry Flushing Mash
Wheat reddog, oatmeal, wheat middlings, wheat bran, corn meal, pulverized oats, meat scrap, fish meal, bone meal, linseed oil meal, soybean oil meal, dried whey, lactoflavin concentrate, ½ of 1% salt, tested cod liver oil, calcite, alfalfa leaf meal.

Kasco Sweet 16% Dairy Feed
Wheat bran, corn gluten feed, corn gluten meal, cottonseed meal, soybean oil meal, ground oats, ground barley, ground wheat screenings, corn meal, oat mill feed (oat middlings, oat hulls, oat shorts), malt sprouts, dried brewers grains, corn distillers grains, molasses, 1% salt, 1% calcite.

Larrowe Milling Co.

Larro the Ready Ration for Dairy Cows
Cottonseed meal, yellow corn meal, wheat standard middlings, soybean oil meal, o. p. linseed oil meal, corn gluten feed, corn distillers dried grains, dried beet pulp, wheat bran, ½% limestone, 1% salt.

Larro Broiler Feed
Yellow corn meal, wheat standard middlings, corn gluten meal, alfalfa meal, wheat bran, meat and bone scraps, soybean oil meal, fish meal, ground oats, dried buttermilk, dried skimmed milk, dried whey, fortified cod liver oil, 2% limestone, ½% salt, .01% manganese dioxide.

Larro Chick Builder
Wheat bran, yellow corn meal, wheat standard middlings, ground barley, meat and bone scraps, soybean oil meal, fish meal, alfalfa meal, dried buttermilk, dried skimmed milk, dried whey, ground oats, fortified cod liver oil, 2½% limestone, ½% salt, .01% manganese dioxide.

Larro 16 Dairy Feed
Cottonseed meal, corn gluten feed, corn distillers dried grains, wheat standard middlings, o. p. linseed oil meal, yellow corn meal, dried beet pulp, wheat bran, 1% salt.

Larro Egg Mash
Wheat bran, yellow corn meal, wheat standard middlings, ground barley, meat and bone scraps, soybean oil meal, fish meal, alfalfa meal, dried buttermilk, dried skimmed milk, dried whey, ground oats, fortified cod liver oil, 2½% limestone, ½% salt, .01% manganese dioxide.

Larro Turkey Builder
Wheat standard middlings, yellow corn meal, ground barley, meat and bone scraps, fish meal, soybean oil meal, dried buttermilk, dried skimmed milk, dried whey, alfalfa meal, wheat bran, ground oats, fortified cod liver oil, 1½% limestone, ½% salt, .01% manganese dioxide.

Larro Turkey Finisher
Yellow corn meal, wheat standard middlings, wheat bran, meat and bone scraps, soybean oil meal, ground barley, ground oats, dried buttermilk, dried skimmed milk, dried whey, alfalfa meal, 2½% limestone, ½% salt.

Mansfield Coal & Grain Co.

Manco 20% Dairy Feed
Dried brewers grains, ground oats, wheat bran, yellow corn meal, 41% cottonseed meal, molasses, 41% soybean meal, corn gluten feed, 32% linseed meal, ground barley, bone meal, salt.

Manco Laying Mash
Wheat standard middlings, yellow corn meal, wheat bran, ground barley, 58% protein fish meal, dried skim milk, 50% protein meat scraps, 41% soybean meal, ground oats, alfalfa meal, corn gluten meal, oyster shell meal or calcium carbonate, cod liver oil or concentrated oil, salt.

Mansfield Milling Co.

Mansfield Chick-Growing Mash
Vitamelk base, ground yellow corn, wheat middlings, charcoal, wheat bran, meat scraps, alfalfa leaf meal, red dog flour, fish meal, feeding oat meal, soy bean oil meal, 1% salt, 2% calcium carbonate.

Mansfield Chick-Starter
Vitamelk base, yellow corn meal, wheat middlings, wheat bran, alfalfa leaf meal, meat scraps, salt ½%, pulverized oats, bone meal, soy bean oil meal, calcium carbonate 1½%.

Mansfield Dry Poultry Mash
Vitamelk base, ground yellow corn, wheat bran, meat scraps, wheat middlings, alfalfa meal, pulverized oats, soy bean oil meal, bone meal, corn gluten feed, wheat red dog flour, 2% calcium carbonate, 1% salt.

Mansfield Sweetened "20" Dairy Ration
Wheat bran, wheat middlings, dried brewers grains, cotton seed meal, corn gluten feed, corn meal, hominy, linseed oil meal, ground oats, cane molasses, edible bone meal, calcium carbonate, salt.

Maritime Milling Co., Inc.

B B Complete Chick Starter Ration
Fortified cod liver oil, kelp meal, dried cheese whey, dried buttermilk, California alfalfa leaf meal, wheat standard middlings, wheat bran, ground wheat, corn gluten meal, corn meal, pulverized heavy oats, pulverized barley, soya bean oil meal, ground oat meal, meat and bone meal, fish meal, calcium carbonate, salt, potassium iodide and manganese sulphate.

Sweetened B B Bull Brand "20" Dairy Ration
Dried brewers grains, corn distillers grains, cotton seed meal, corn gluten feed, soya bean oil meal, o. p. linseed oil meal, hominy feed, corn meal, wheat bran, wheat standard middlings, molasses, steamed bone meal, calcium carbonate, salt and potassium iodide.

B B Bull Brand Dry and Fresh Cow Fitting Ration
Dried beet pulp, hominy feed, corn meal, alfalfa meal, soya bean oil meal, crushed oats, wheat bran, o. p. linseed oil meal, corn gluten feed, molasses, kelp meal, steamed bone meal, calcium carbonate, salt, potassium iodide, irradiated brewers yeast.

B B Fattening Mash
Dried cheese whey, dried buttermilk, wheat flour middlings, wheat standard middlings, corn meal, corn germ meal, dehydrated alfalfa meal, pulverized barley, pulverized heavy oats, o. p. linseed oil meal, feeding rolled oats, meat and bone meal, calcium carbonate, salt.

B B Flushing and Conditioning Mash
Fortified cod liver oil, shark liver oil, dried cheese whey, dried buttermilk, dehydrated alfalfa leaf meal, wheat standard middlings, corn meal, ground oat meal, soya bean oil meal, meat and bone meal, fish meal, calcium carbonate, salt, potassium iodide.

B B Growing Mash
Fortified cod liver oil, dried cheese whey, dried buttermilk, dehydrated alfalfa meal, wheat bran, wheat standard middlings, ground wheat, corn meal, pulverized heavy oats, pulverized barley, ground oat meal, soya bean oil meal, corn gluten meal, meat and bone meal, fish meal, calcium carbonate, salt, potassium iodide, manganese sulphate.

B B Layer & Breeder Mash
Fortified cod liver oil, liver meal, kelp meal, dried cheese whey, dried buttermilk, California alfalfa leaf meal, wheat bran, wheat standard middlings, soya bean oil meal, corn gluten meal, corn meal, pulverized heavy oats, pulverized barley, ground oat meal, meat and bone meal, fish meal, calcium carbonate, salt, potassium iodide, manganese sulphate.

Daisy Egg Mash
Dried buttermilk, alfalfa meal, wheat bran, wheat standard middlings, soya bean oil meal, corn gluten meal, corn meal, pulverized barley, pulverized oats, meat and bone meal, fish meal, calcium carbonate, salt, manganese sulphate. (With or without fortified cod liver oil).

Hi-Test Dairy Feed 24% Pro. Sweetened
Dried brewers grains, cotton seed meal, corn gluten feed, soya bean oil meal, hominy feed, corn meal, ground oats, cleaned, pulverized and bolted screenings from wheat, oats, and barley, wheat bran, molasses, steamed bone meal, calcium carbonate, salt.

Hi-Test Dairy Feed 20% Pro. Sweetened
Dried brewers grains, cotton seed meal, corn gluten feed, soya bean oil meal, hominy feed, ground oats, corn meal, cleaned, pulverized and bolted screenings from wheat, oats, and barley, wheat bran, molasses, steamed bone meal, calcium carbonate, salt.

Middlesex County Farm Bureau Association

Farm Bureau All Mash Developer
Corn meal, wheat bran, standard gray middlings, ground oats 36 lb., ground barley, alfalfa leaf meal, soybean oil meal, skim milk, meat scraps 50%, oyster shell meal (manganese), cod liver oil (super), salt.

Farm Bureau All Mash Laying
Yellow corn meal, wheat bran, standard middlings, ground oats 36 lb., dried skim milk, alfalfa leaf meal, meat scraps 50%, fish meal 58%, oyster shell meal, cod liver oil (super), salt.

Farm Bureau Battery Mash
Yellow corn meal, wheat bran, standard middlings, ground oats, alfalfa leaf meal, dried skim milk, meat scraps 50%, oyster shell flour (manganese), salt, cod liver oil (super), soybean oil meal.

Farm Bureau Breeder and Laying Mash 20%
Corn meal, Xtrafine ground oats, wheat bran, soybean oil meal 41%, alfalfa leaf meal, flour middlings, meat scraps 50%, fish meal 58%, powdered milk, whey powder, oyster shell flour (manganese), cod liver oil (super), salt.

Farm Bureau Complete Laying Mash
Yellow corn meal, wheat bran, standard gray middlings, ground oats 36 lb., ground barley, alfalfa leaf meal, soybean meal 41%, meat scraps 50%, fish meal 58%, salt, oyster shell meal (manganese), fortified cod liver oil.

Farm Bureau Dairy Ration 24%
Corn meal, ground oats 36 lb., standard wheat bran, corn distillers grain, cottonseed meal 41%, soybean meal 41%, corn gluten feed, linseed oil meal, cane molasses, calcium carbonate, salt.

Farm Bureau Dairy Ration 20%
Corn meal, ground oats, standard wheat bran, corn distillers grain, cottonseed meal 41%, soybean oil meal 41%, corn gluten feed, linseed oil meal, cane molasses, ground barley, calcium carbonate, salt.

Farm Bureau Dairy Ration 16%
Corn meal, ground oats 36 lb., standard wheat bran, corn distillers grain, corn gluten feed, ground barley, cane molasses, cottonseed meal 41%, soybean oil meal 41%, linseed oil meal. calcium carbonate, salt.

Farm Bureau Dairy Ration 12%
Corn meal, crimped oats, standard wheat bran, ground barley, cane molasses, alfalfa leaf meal, soybean oil meal 41%, linseed oil meal, cod liver oil (super), calcium carbonate, salt.

Farm Bureau Laying Mash
Yellow corn meal, ground oats, wheat bran, soybean oil meal, alfalfa leaf meal, cod liver oil (super), standard middlings, meat scraps 50%, fish meal 58%, ground barley, oyster shell meal (manganese), dicalcium phosphate, salt.

Farm Bureau Turkey Fattener
Yellow corn meal, wheat bran, standard middlings, ground oats 36-lb., ground barley, alfalfa leaf meal, 45% meat scraps, dried skim milk, 41% soybean oil meal, corn gluten meal, oyster shell meal, salt.

Farm Bureau Turkey Growing Ration
Corn meal, standard bran, standard middlings, fine ground oats, 36-lb., fine ground barley, alfalfa leaf meal, meat scraps 50%, fish meal 58%, gluten meal, soybean oil meal 41%, dried skim milk, manganese oyster shell flour, salt, cod liver oil (super).

Geo. Q. Moon & Co., Inc.

Crescent Laying Mash
Corn meal, wheat bran (with ground screenings not to exceed mill run), soybean oil meal, pulverized oats, ground oats, corn gluten feed, alfalfa meal, meat scraps, fish meal, cod liver oil, dried skimmed milk, salt, calcium carbonate, manganese sulphate, molasses, V. D. (Vitadine), wheat germ oil.

Moon's Complete Growing Mash
Yellow corn meal, standard middlings, bran (with ground screenings not to exceed mill run), pulverized oats, meat scraps, dried skim milk, alfalfa meal, ground limestone, salt, cod liver oil, Vitadine, soybean oil meal, bone meal, manganese sulphate, wheat germ oil.

Moon's Complete Laying Mash
Corn meal, standard middlings, wheat bran (with ground screenings not to exceed mill run), white wheat middlings, meat scrap, dried skim milk, bone meal, salt, calcium carbonate, alfalfa meal, cod liver oil, soybean oil meal, pulverized oats, manganese sulphate, corn gluten feed, V. D. (Vitadine), wheat germ oil.

Moon's 24% Dairy Ration
Corn gluten feed, corn distillers grains, hominy feed, soybean oil meal, peanut oil meal, o. p. linseed oil meal, cottonseed meal, wheat bran (with ground screenings not to exceed mill run), calcium carbonate, salt, molasses, rye distillers grains, babassu meal, palm kernel meal.

Moon's Fattener Mash
Hominy feed, pulverized oats, low grade flour, fine ground barley, corn germ meal, linseed oil meal, standard middlings, meat scrap, salt.

Moon's Laying Mash
Standard middlings, wheat bran (with ground screenings not to exceed mill run), ground barley, meat scrap, fish meal, soybean oil meal, pulverized oats, corn gluten feed, corn meal, wheat flour middlings, hominy feed, alfalfa meal, dried skim milk, dried buttermilk, calcium carbonate, salt, cod liver oil, manganese sulphate, Vitadine, wheat germ oil.

Moon's Turkey Growing Mash
Corn meal, hominy feed, standard middlings, wheat bran (with ground screenings not to exceed mill run), pulverized oats, alfalfa meal, soybean oil meal, meat scrap, fish meal, gluten feed, skimmed milk, calcium carbonate, calcium phosphate, cod liver oil, Vitadine, wheat germ oil.

Moon's Turkey Starting Mash
Corn meal, hominy feed, standard middlings, wheat bran (with ground screenings not to exceed mill run), pulverized oats, alfalfa meal, soybean meal, meat scrap, fish meal, gluten feed, skimmed milk, calcium carbonate, calcium phosphate, cod liver oil, V. D. (Vitadine), wheat germ oil.

Open Formula Dairy Ration
Wheat bran, yellow hominy feed, ground oats, corn gluten feed, cottonseed meal, soybean oil meal, o. p. linseed oil meal, corn distillers dried grains, molasses, dicalcium phosphate, salt.

Special A Dairy 20% Ration
Corn gluten feed, corn distillers grains, rye distillers grains, cottonseed meal, o. p. linseed oil meal, wheat bran (with ground screenings not to exceed mill run), soybean oil meal, peanut oil meal, hominy feed, calcium carbonate, salt, molasses, babassu meal, palm kernel meal.

U. S. 24% Dairy Ration
Corn gluten feed, rye distillers grains, corn distillers grains, hominy feed, corn meal, soybean oil meal, peanut oil meal, o. p. linseed oil meal, cottonseed meal, alfalfa meal, wheat bran (with ground screenings not to exceed mill run), ground grain screenings, ground and bolted clipped oat by-products, calcium carbonate, salt, molasses, ground barley, babassu meal, palm kernel meal, murumuru meal.

U. S. 20% Dairy Ration
Tucum meal, corn gluten feed, soybean oil meal, peanut oil meal, wheat bran (with ground screenings not to exceed mill run), ground and bolted clipped oat by-product, alfalfa meal, cottonseed meal, rye distillers grains, corn distillers grains, calcium carbonate, ground screenings from wheat, salt, molasses, ground barley, murumuru meal, babassu meal, palm kernel meal.

New England Grain Co.

New England Broiler Ration
Ground corn, wheat, barley, wheat bran, flour middlings, feeding oatmeal, meat scraps, fish meal, alfalfa leaf meal, dried milk, calcium carbonate (shell flour), cod liver oil, salt.

New England Economy 20% Dairy Feed
Gluten feed, cotton seed meal, wheat bran, wheat middlings, soy bean meal, oat by-products, linseed oil meal, dried distillers grains, corn meal, molasses, salt.

New England Economy Laying Mash
Ground corn, wheat and oats, wheat bran, wheat middlings, meat scraps, linseed oil meal, fish meal, alfalfa leaf meal, dried milk, cod liver oil, shell flour, molasses, salt.

New England Economy Starter & Growing Feed
Ground wheat, corn & oats, wheat bran, flour middlings, meat scraps, alfalfa leaf meal, fish meal, dried milk, shell flour, molasses, cod liver oil, salt.

New England Egg Mash
Feeding oatmeal, ground corn, ground wheat, pure wheat bran, flour middlings, alfalfa leaf meal, meat scraps, fish meal, dried milk, calcium carbonate, cod liver oil, salt.

New England Open Formula 20% Dairy Feed
Linseed oil meal, corn distillers dried grains, gluten feed, gluten meal, pure wheat bran, corn meal, choice cotton seed meal, wheat middlings, cane molasses, cattle bone meal, salt, calcium carbonate.

New England Turkey Grower
Red dog, corn meal, barley, wheat, middlings, soybean meal, milk, meat scraps, fish meal, leaf meal, bran, ground oats, shell flour, cod liver oil.

3 in 1 Mash, Starting, Growing and Laying
Cod liver oil, cod liver meal, dried milk, feeding oatmeal, alfalfa leaf meal, fish meal, meat meal, flour middlings, pure wheat bran, ground corn, shell flour, ground wheat, molasses, salt.

New England Retail Grain Dealers Cooperative Association, Inc.

New England Quality Chick Starter
Meat meal, fish meal, blood flour meal, oatmeal, pulverized oats, yellow corn meal, corn hominy, wheat bran, flour middlings, soybean meal, alfalfa meal, skim or buttermilk, dried whey, fortified cod liver oil, bone charcoal, iron sulphate, manganese sulphate, calcium carbonate, iodized salt.

New England Quality Complete Laying Mash
Corn meal, soybean meal, gluten meal, meat meal, choice alfalfa, wheat bran, wheat middlings, skimmilk, pulverized heavy oats, fortified cod liver oil, minerals: manganese sulphate, iron sulphate, calcium carbonate, bone charcoal, iodized salt.

New England Quality 20% Dairy Feed
Choice cottonseed meal, o. p. linseed oil meal, gluten feed, 28% corn distillers, soybean meal, ground wheat, wheat bran (may contain screenings), standard middlings, heavy ground oats, corn meal or corn hominy feed, choice malt sprouts, 24% brewers grains, cane molasses, bone charcoal, iron sulphate, iodized salt.

New England Quality 16% Dairy Feed
Corn distillers grains, soybean oil meal, o. p. linseed oil meal, corn gluten feed, choice cottonseed meal, ground barley, wheat bran (may contain screenings), ground oats, malt sprouts, corn meal or hominy feed, cane molasses, bone charcoal, iron sulphate, calcium carbonate, iodized salt.

New England Quality Laying Mash
Meat meal, fish meal, skim or buttermilk, dried whey, cod liver oil, yellow corn meal, heavy ground oats, whole ground wheat, ground barley, red dog flour, wheat bran, gluten meal, soybean, alfalfa meal, bone charcoal, iron sulphate, manganese sulphate, calcium carbonate, iodized salt.

New England Yankee 20% Dairy Ration
Corn distillers grains, choice malt sprouts, corn gluten feed, o. p. linseed oil meal, corn feed meal or hominy, wheat bran (may contain screenings), dried brewers grains, choice cottonseed meal, soybean oil meal, cane molasses, iodized salt, calcium carbonate.

New England Yankee Egg Mash
Meat meal, fish meal, soybean oil meal, corn gluten meal, skim or buttermilk, dried whey, o. p. linseed oil meal, yellow corn meal, wheat bran (may contain screenings), pulverized oats, wheat flour middlings, wheat standard middlings, choice alfalfa, ground barley, iodized salt, calcium carbonate, manganese sulphate, USP cod liver oil, steam bone meal.

New England Yankee Growing Mash
Meat meal, fish meal, corn gluten meal, soybean oil meal, o. p. linseed oil meal, skim or buttermilk, yellow corn meal, pulverized oats, standard bran (may contain screenings), standard middlings, flour middlings, choice alfalfa, steam bone meal, iodized salt, calcium carbonate.

Ogden Grain Co.

Cloverbloom 24% Dairy Feed
Gluten meal, gluten feed, soyabean oil meal, corn meal or hominy, wheat bran, cotton seed meal, ground oats, oat feed (oat shorts, oat hulls, oat middlings), calcium carbonate, cane molasses, salt.

Cloverbloom 20% Dairy Feed
Corn gluten feed, cotton seed meal, old process linseed oil meal, soyabean oil meal, dried brewers grains, wheat bran, ground wheat screenings, oat feed (oat hulls, oat shorts, oat middlings), corn meal or hominy, cane molasses, salt, calcium carbonate.

Pilgrim "Cackle" 20% Layer—Breeder
Dried skim milk, alfalfa meal, pulverized oats, meat scraps, fish meal, gluten meal, corn meal, soyabean oil meal, wheat bran, wheat middlings, oyster shell meal, cod liver oil, salt, potassium iodide, manganese, Vitadine.

Pilgrim Growing Mash
Alfalfa meal, dried skim milk, meat scraps, fish meal, wheat middlings, wheat bran, pulverized oats, corn meal, oyster shell meal, salt, cod liver oil, potassium iodide.

Pilgrim Starter & Broiler Ration
Corn meal, gluten meal, soyabean oil meal, alfalfa leaf meal, fine ground oats, meat scraps, fish meal, wheat bran, standard middlings, red dog midolings, dried skim milk, cod liver oil, oyster shell meal, salt, potassium iodide.

Thrift 20% Dairy Feed
Soyabean oil meal, old process linseed oil meal, corn gluten feed, gluten meal, ground corn, ground oats, ground wheat, cottonseed meal, wheat bran, wheat middlings (may contain mill run screenings), dried brewers grains, molasses, calcium carbonate, salt, potassium iodide.

Park & Pollard Co.

Bidwell 20% Dairy Ration
Wheat bran, linseed oil meal, malt sprouts, gluten feed, ground oats, gluten meal, brewers dried grains, soybean oil meal, ground barley, cottonseed meal, ground grain screenings from wheat, oats, barley, buckwheat and milo, molasses, calcium carbonate, salt.

Bidwell Laying Mash
Dried buttermilk, alfalfa meal, corn meal, ground oats, ground barley, wheat bran (may contain mill run wheat screenings), wheat middlings, fish meal, meat and bone meal, linseed oil meal, corn gluten meal, soybean oil meal, calcium carbonate, manganese sulphate, vitamin tested cod liver oil, salt.

Doublex 24% Dairy Ration
Wheat bran, linseed oil meal, brewers dried grains, soybean oil meal, hominy, ground oats, malt sprouts, corn gluten meal, cottonseed meal, corn gluten feed, ground grain screenings from wheat, oats, barley, buckwheat and milo, molasses, calcium carbonate, salt.

Doublex 20% Dairy Ration
Linseed oil meal, corn gluten feed, brewers dried grains, ground oats, corn gluten meal, soybean oil meal, hominy, corn distillers grains, ground barley, wheat bran, malt sprouts, cottonseed meal, ground grain screenings from wheat, oats, barley, buckwheat and milo, molasses, calcium carbonate, salt.

Doublex 16% Dairy Ration
Corn distillers grains, ground oats, ground barley, brewers dried grains, malt sprouts, linseed oil meal, cottonseed meal, ground grain screenings from wheat, oats, barley, buckwheat, and milo, hominy, soybean oil meal, corn gluten feed, molasses, calcium carbonate, salt.

Lay or Bust Dry Mash
Dried buttermilk, alfalfa leaf meal, corn gluten meal, fish meal, ground yellow corn, ground barley, meat scrap, linseed oil meal, ground oats, soybean oil meal, wheat bran (may contain mill run wheat screenings), wheat middlings, calcium carbonate, salt, manganese sulphate, vitamin tested cod liver oil.

Manamar Doublex 20% Dairy Ration
Kelp, Pacific Coast fish meal, marine sea shells, linseed oil meal, corn gluten feed, brewers dried grains, ground oats, corn gluten meal, soybean oil meal, hominy, ground barley, corn distillers grains, wheat bran, malt sprouts, cottonseed meal, ground grain screenings from wheat, oats, barley, buckwheat and milo, molasses, calcium carbonate, salt.

Manamar Life Cycle Mash
Kelp, Pacific Coast fish meal, marine sea shells, meat scrap, wheat bran (may contain mill run wheat screenings), wheat middlings, ground yellow corn, soybean oil meal, ground oats, ground barley, alfalfa leaf meal, corn gluten meal, dried buttermilk, manganese sulphate, vitamin tested cod liver oil.

Milkmaid 24% Sweetened Dairy Ration
Corn gluten feed, linseed oil meal, cottonseed meal, ground barley, corn distillers dried grains, soybean oil meal, wheat bran, brewers dried grains, malt sprouts, corn gluten meal, corn meal, molasses, calcium carbonate, salt.

Milkmaid 20% Dairy Ration
Corn gluten feed, linseed oil meal, cottonseed meal, ground barley, corn distillers dried grains, soybean oil meal, ground oats, wheat bran, brewers dried grains, malt sprouts, corn gluten meal, corn meal, cane molasses, calcium carbonate, salt.

Park & Pollard Fleshing Pellets
Yellow corn meal, ground barley, ground oats, soybean oil meal, dehydrated alfalfa leaf meal, meat scrap, wheat bran (may contain mill run wheat screenings), wheat middlings, linseed oil meal, gluten feed, molasses, dried buttermilk, calcium carbonate, salt, cod liver oil.

Park & Pollard Growing Feed
Dried buttermilk, alfalfa leaf meal, fish meal, linseed oil meal, ground yellow corn, ground barley, meat scrap, wheat bran (may contain mill run wheat screenings), wheat middlings, ground oats, corn gluten meal, calcium carbonate, salt, manganese sulphate, vitamin tested cod liver oil.

Park & Pollard Manamar Fitting Ration
Kelp, Pacific Coast fish meal, marine sea shells, linseed oil meal, ground oats, corn meal, ground barley, wheat bran, molasses, calcium carbonate, cracked corn, crushed oats, salt.

Park & Pollard Starter & Broiler Mash
Ground yellow corn, wheat bran, wheat flour middlings, pulverized oats, ground barley, fish meal, meat scrap, corn gluten meal, soybean oil meal, alfalfa leaf meal, calcium carbonate, manganese sulphate, salt, dried skim milk, vitamin tested cod liver oil.

Park & Pollard Turkey Grower
Yellow corn meal, ground barley, dehydrated alfalfa leaf meal, ground oats, meat scrap, wheat bran, wheat middlings, corn gluten meal, soybean oil meal, dried buttermilk, dried skim milk, calcium carbonate, salt, manganese sulphate, vitamin tested cod liver oil.

George H. Parker Grain Co.

Parker's Egg Mash
Yellow corn meal, wheat bran, wheat middlings, ground oats, feeding oatmeal, dried skimmed milk, meat scraps, fish meal, alfalfa leaf meal, edible bone meal, calcium carbonate, charcoal, salt, cod liver oil.

Parker's Growing Mash
Yellow corn meal, wheat bran, pulverized oats, alfalfa leaf meal, wheat middlings, ground barley, meat scraps, fish meal, soy bean meal, dried skimmed milk, calcium carbonate, salt, cod liver oil, sardine oil, manganese.

Parker's Special Dairy Ration
Wheat bran, yellow corn meal, hominy, old process linseed meal, oat feed, corn gluten feed, cottonseed meal, molasses, calcium carbonate, steamed bone meal, salt.

Parker's Starter & Broiler Mash
Yellow corn meal, wheat bran, wheat middlings, feeding oat meal, dried skimmed milk, soy bean meal, meat scraps, fish meal, alfalfa leaf meal, edible bone meal, calcium carbonate, salt, cod liver oil, manganese.

H. C. Puffer Co.

Egg-Em-On Growing Mash
Corn feed meal, corn gluten feed, ground barley, ground oats, soy bean meal, wheat bran, wheat middlings, meat scrap, fish meal, dried milk, alfalfa meal, cod liver oil, salt, calcium carbonate, manganese sulphate.

Egg-Em-On Laying Mash
Dried milk, fish meal, meat scraps, wheat bran, wheat middlings (not exceeding mill run screenings), corn feed meal, corn gluten feed, ground oats, soy bean meal, linseed meal, alfalfa meal, cod liver oil, small percentage salt, calcium carbonate, manganese sulphate.

Egg-Em-On Starter & Broiler
Corn feed meal, corn gluten feed, feeding oatmeal, ground oats, wheat bran, wheat middlings, red dog middlings, ground barley, alfalfa leaf meal, fish meal, dried milk, meat scrap, cod liver oil, small percentage salt, calcium carbonate, dicalcium phosphate, manganese sulphate, soy bean meal.

Producer Dairy Feed
Linseed oilmeal, cottonseed meal, corn gluten feed, soy bean meal, ground oats, corn feed meal or hominy, wheat bran (not exceeding mill run screenings), small percentage salt, calcium carbonate, edible bone meal, wheat middlings.

Sweetened Producer Dairy Feed
Linseed oil meal, cottonseed meal, corn gluten feed, corn feed meal or hominy, wheat bran (not exceeding mill run of screenings), oat feed, soy bean meal, molasses, small percentage salt, calcium carbonate, edible bone meal.

Quaker Oats Co.

Big Egg Laying Mash
Hominy feed, yellow hominy feed, wheat bran, wheat standard middlings, corn gluten meal, ground oats, fish meal, cod liver meal, soybean oil meal, meat scraps, fortified sardine oil, dried buttermilk, cane molasses, dehydrated alfalfa meal, ¾ of 1% salt.

Ful-O-Pep Broiler Mash
Oatmeal, yellow hominy feed, wheat bran, wheat standard middlings, barley feed, corn gluten meal, soybean oil meal, fish meal, cod liver meal, meat scraps, fortified sardine oil, dried whey, dried buttermilk, cane molasses, dehydrated alfalfa meal, dehydrated cereal grass (from wheat, oats, rye, and barley), ¾ of 1% salt.

Ful-O-Pep Chick Starter
Oatmeal, yellow hominy feed, wheat bran, wheat standard middlings, fish meal, cod liver meal, meat scraps, soybean oil meal, fortified sardine oil, dried whey, dried buttermilk, cane molasses, dehydrated alfalfa meal, dehydrated cereal grass (from wheat, oats, rye, and barley), ¾ of 1% salt.

Ful-O-Pep Egg Breeder Mash
Oatmeal, hominy feed, yellow hominy feed, wheat bran, wheat standard middlings, barley feed, fish meal, cod liver meal, meat scraps, fortified sardine oil, dried whey, dried buttermilk, cane molasses, dehydrated alfalfa meal, dehydrated cereal grass (from wheat, oats, rye, and barley), ¾ of 1% salt.

Ful-O-Pep Growing Mash
Oatmeal, yellow hominy feed, wheat bran, wheat standard middlings, barley feed, fish meal, cod liver meal, meat scraps, fortified sardine oil, dried whey, dried buttermilk, cane molasses, dehydrated alfalfa meal, dehydrated cereal grass (from wheat, oats, rye, and barley), ¾ of 1% salt.

Quaker 24% Protein Dairy Ration
Crushed oats, hominy feed, yellow hominy feed, barley feed, cottonseed meal, corn distillers grains, corn gluten feed, soybean oil meal, wheat bran, wheat standard middlings, oat mill feed (oat hulls, oat shorts, oat middlings), 1% salt, 1% iodized ground limestone, 1% bone meal, cane molasses.

Quaker 20% Protein Dairy Ration
Crushed oats, hominy feed, yellow hominy feed, barley feed, cottonseed meal, corn distillers grains, corn gluten feed, soybean oil meal, wheat bran, wheat standard middlings, oat mill feed (oat hulls, oat shorts, oat middlings), 1% salt, 1% iodized ground limestone, 1% bone meal, cane molasses.

Quaker 16% Protein Dairy Ration
Crushed oats, hominy feed, yellow hominy feed, barley feed, cottonseed meal, soybean oil meal, corn gluten feed, corn distillers grains, wheat bran, wheat standard middlings, oat mill feed (oat hulls, oat shorts, oat middlings), 1% salt, 1% iodized ground limestone, 1% bone meal, cane molasses.

Quaker Sugared Schumacher Feed
Ground corn, hominy feed, yellow hominy feed, barley feed, cottonseed meal, soybean oil meal, low grade wheat flour, wheat standard middlings, oat mill feed (oat hulls, oat shorts, oat middlings), 1% salt, 1% iodized ground limestone, 1% bone meal, cane molasses.

Ralston Purina Co.

Protena 20% Dairy Feed
Soy bean oil meal, cottonseed meal, corn gluten feed, wheat middlings (standard), alfalfa meal, wheat bran, ground grain screenings (from wheat, corn, oats, barley, kafir), molasses, 2% calcium carbonate (limestone), 1% iodized salt.

Purina Breeder Lay Chow
Flavin concentrate, carotene, cod liver oil, sardine oil, dried buttermilk, meat scrap, soy bean oil meal, fish meal, alfalfa meal, corn germ meal, wheat middlings (standard), wheat bran, corn meal, ground oats, 1% iodized salt, 3% calcium carbonate (limestone).

Purina Broiler Chow
Corn gluten meal, flavin concentrate, carotene, cod liver oil, sardine oil, meat scrap, fish meal, soy bean oil meal, dried buttermilk, alfalfa leaf meal, corn meal, ground oats, wheat middlings (standard), wheat bran, alfalfa meal, 1½% calcium carbonate (limestone), ½% iodized salt.

Purina Bulky Las Chow (Buffalo Mill)
Dried beet pulp, wheat bran, molasses, wheat middlings (standard), alfalfa meal, 2% calcium carbonate (limestone), 2% iodized salt.

Purina Chick Growena
Flavin concentrate, carotene, cod liver oil, sardine oil, meat scrap, fish meal, soy bean oil meal, wheat germ, dried buttermilk, alfalfa meal, corn meal, dried beet pulp, wheat middlings (grey), wheat bran, 1½% calcium carbonate (limestone), ½% iodized salt.

Purina Chick Startena
Flavin concentrate, carotene, cod liver oil, sardine oil, meat scrap, fish meal, soy bean oil meal, alfalfa leaf meal, wheat germ, dried buttermilk, linseed meal, corn germ meal, oat middlings, corn meal, wheat bran, wheat middlings (grey), 1½% calcium carbonate (limestone), ½% iodized salt.

Purina 24% Cow Chow
Soy bean oil meal, corn gluten feed, linseed meal, cottonseed meal, distillers corn dried grains, wheat middlings (standard), wheat bran, corn meal, alfalfa meal, molasses, minerals: 1% steamed bone meal (tri-calcium phosphate), 1% salt (sodium chloride), 1% limestone (calcium carbonate), potassium iodide — 0.17 grams per 100 pounds of feed.

Purina 20% Cow Chow
Soy bean oil meal, corn gluten feed, linseed meal, crushed oats, cottonseed meal, distillers corn dried grains, wheat middlings (standard), wheat bran, corn meal, alfalfa meal, molasses, minerals: 1% steamed bone meal (tri-calcium phosphate), 1% salt (sodium chloride), 1% limestone (calcium carbonate), potassium iodide — 0.17 grams per 100 pounds of feed.

Purina 18% Cow Chow
Soy bean oil meal, cottonseed meal, distillers corn dried grains, corn gluten feed, crushed oats, corn meal, wheat middlings (standard), alfalfa meal, wheat bran, molasses, minerals: 1% steamed bone meal (tri-calcium phosphate), 1% salt (sodium chloride), 1% limestone (calcium carbonate), potassium iodide — 0.17 grams per 100 pounds of feed.

Purina 16% Cow Chow
Soy bean oil meal, corn gluten feed, linseed meal, crushed oats, ground barley, cottonseed meal, distillers corn dried grains, wheat middlings (standard), wheat bran, corn meal, molasses, minerals: 1% steamed bone meal (tri-calcium phosphate), 1% salt (sodium chloride), 1% limestone (calcium carbonate), potassium iodide — 0.17 grams per 100 pounds of feed.

Purina Dry and Freshening Chow
Flavin concentrate, carotene, soy bean oil meal, crushed oats, dried beet pulp, corn meal, alfalfa meal, wheat bran, molasses, 2% calcium carbonate (limestone), 2% iodized salt.

Purina Egg Chow (Complete Ration)
Carotene, meat scrap, ground oats, fish meal, soy bean oil meal, alfalfa meal, dried buttermilk, wheat bran, wheat middlings (standard), dried beet pulp, corn meal, ground barley, corn gluten feed, cod liver oil, sardine oil, ½% iodized salt, 4.5% calcium carbonate (limestone).

Purina Family Flock Chow
Carotene, meat scrap, soy bean oil meal, alfalfa meal, wheat middlings (standard), wheat bran, corn meal, ground barley, corn gluten feed, dried buttermilk, cod liver oil, sardine oil, 4% calcium carbonate (limestone), ½% iodized salt.

Purina Layena (Complete Ration)
Flavin concentrate, carotene, cod liver oil, sardine oil, meat scrap, ground oats, fish meal, soy bean oil meal, alfalfa meal, dried buttermilk, wheat middlings (standard), dried beet pulp, corn meal, ½% iodized salt, 4% calcium carbonate (limestone).

Purina Milk Chow (20%)
Soy bean oil meal, corn gluten feed, crushed oats, cottonseed meal, distillers corn dried grains, wheat middlings (standard), wheat bran, corn meal, alfalfa meal, molasses, 2% calcium carbonate (limestone), 1% iodized salt.

Purina Turkey Breeder Chow
Flavin concentrate, carotene, cod liver oil, sardine oil, meat scrap, fish meal, ground oats, dried buttermilk, alfalfa leaf meal, corn meal, wheat middlings (grey), alfalfa meal, soy bean oil meal, wheat bran, 3% calcium carbonate (limestone), 1% iodized salt.

Purina Turkey-Chicken Fatena Checkers
Ground oats, corn meal, ground barley, meat scrap, dried buttermilk, soy bean oil meal, alfalfa meal, wheat middlings (grey), molasses, 1.5% calcium carbonate (limestone), ½% iodized salt.

Purina Turkey Layena (Complete Ration)
Flavin concentrate, carotene, cod liver oil, sardine oil, meat scrap, ground oats, fish meal, soy bean oil meal, alfalfa meal, dried buttermilk, wheat middlings (standard), dried beet pulp, corn meal, ½% iodized salt, 4% calcium carbonate (limestone).

Purina Turkey Startena
Flavin concentrate, carotene, cod liver oil, sardine oil, meat scrap, fish meal, alfalfa leaf meal, wheat germ, dried buttermilk, ground oats, corn meal, soy bean oil meal, wheat middlings (grey), wheat bran, 2% calcium carbonate (limestone), ½% iodized salt.

D. F. Riley

Riley's 20% Dairy Ration
Gluten feed, wheat middlings, linseed oil meal (or soy bean meal), 41% cottonseed meal, wheat bran, dried brewer grains, ground oats, corn meal (or hominy), bone meal, molasses, calcium carbonate, salt.

Riley's Laying Mash
Wheat middlings, wheat bran, yellow corn meal, gluten feed, ground oats, beef scraps, fish meal, dried skim milk, o. p. oil meal, alfalfa leaf meal, calcium carbonate, cod liver oil, salt.

Roy Grain Co.

Chick Starter and Grower
Wheat bran, wheat middlings, pulverized oats, yellow corn meal, meat scraps, fish meal, soybean oil meal, dried milk, dehydrated alfalfa meal, fortified sardine oil, calcium carbonate, salt.

Roy's Hen Mash
Wheat bran, wheat middlings, pulverized oats, ground heavy oats, yellow corn meal, meat scraps, fish meal, soybean oil meal, dried milk, dehydrated alfalfa meal, fortified sardine oil, oyster shell meal, calcium carbonate, salt.

Ryther & Warren Co.

Blue Tag Dairy Ration
41% cottonseed meal, soy bean oil meal, corn gluten feed, hominy feed (or corn meal), pure wheat bran, wheat middlings, ground oats, corn distillers grains, dried beet pulp, calcium carbonate, salt.

Minot Chick Mash
Corn meal, pure wheat bran, flour middlings, ground oat meal, meat scraps 50% protein, fish meal 60% protein, powdered milk, alfalfa leaf meal, soy bean meal, shell flour, salt, fortified cod liver oil.

Minot Growing Mash
Corn meal, pure bran, wheat middlings, ground oats, ground barley, corn gluten meal, soy bean oil meal, alfalfa leaf meal, meat scraps, fish meal, powdered milk, shell meal, salt, fortified cod liver oil.

Minot Milk Egg Mash
Corn meal, pure bran, flour middlings, ground oats, meat scraps 50% protein, fish meal 60% protein, alfalfa leaf meal, powdered milk, corn gluten meal, shell flour, salt, fortified cod liver oil.

St. Albans Grain Co.

Energy 20 Dairy Ration
Soybean oil meal, cottonseed meal, corn gluten feed, brewers dried grains, yellow corn meal, hominy feed, ground oats, ground barley, wheat bran, wheat standard middlings, cane molasses, calcium carbonate, salt.

Hygrade 24 Milk Ration
Old process linseed meal, soybean oil meal, cottonseed meal, corn gluten meal, corn gluten feed, brewers dried grains, yellow corn meal, hominy feed, ground oats, ground barley, wheat bran, wheat standard middlings, cane molasses, calcium carbonate, salt.

Hygrade 20 Milk Ration
Old process linseed meal, soybean oil meal, cottonseed meal, corn gluten meal, corn gluten feed, brewers dried grains, yellow corn meal, hominy feed, ground oats, ground barley, wheat bran, wheat standard middlings, cane molasses, calcium carbonate, salt.

Hygrade 16 Milk Ration
Old process linseed meal, soybean oil meal, corn gluten feed, brewers dried grains, yellow corn meal, hominy feed, ground oats, ground barley, wheat bran, wheat standard middlings, cane molasses, calcium carbonate, salt.

Utility 20 Dairy Ration
Old process linseed meal, soybean oil meal, cottonseed meal, corn gluten feed, brewers dried grains, yellow corn meal, hominy feed, ground oats, ground barley, oat mill feed (oat hulls, oat shorts and oat middlings), wheat bran, wheat standard middlings, cane molasses, calcium carbonate and salt.

Utility 16 Dairy Ration
Old process linseed meal, soybean oil meal, cottonseed meal, corn gluten meal, corn gluten feed, brewers dried grains, yellow corn meal, hominy feed, ground oats, ground barley, oat mill feed (oat hulls, oat shorts, oat middlings), wheat bran, wheat standard middlings, cane molasses, calcium carbonate, salt.

Utility Growing Ration
Fortified cod liver oil, dried skimmed milk, meat scraps, fish meal, soybean oil meal, corn gluten feed, dehydrated alfalfa meal, yellow corn meal, ground wheat, wheat bran, wheat standard middlings, ground oats, ground barley, calcium carbonate, salt.

Utility Laying Ration
Fortified cod liver oil, dried skimmed milk, meat scraps, fish meal, corn gluten feed, dehydrated alfalfa meal, yellow corn meal, ground wheat, wheat bran, wheat standard middlings, ground oats, ground barley, calcium carbonate, manganese sulphate, salt.

Wirthmore Baby Chick Starter
Fortified cod liver oil, dried skimmed milk, dried whey, meat scraps, fish meal, soybean oil meal, corn gluten meal, alfalfa leaf meal, yellow corn meal, wheat bran, wheat standard middlings, ground oat groats, pulverized oats, calcium carbonate, manganese sulphate, salt.

Wirthmore 25 Balanced Ration
Old process linseed meal, soybean oil meal, cottonseed meal, corn gluten meal, corn gluten feed, corn distillers dried grains, yellow corn meal, ground oats, ground barley, wheat bran, wheat standard middlings, cane molasses, steamed bone meal, salt.

Wirthmore Battery Ration
Fortified cod liver oil, dried skimmed milk, dried whey, meat scraps, fish meal, soybean oil meal, corn gluten meal, dehydrated alfalfa meal, yellow corn meal, ground wheat, wheat bran, wheat standard middlings, ground oats, ground barley, calcium carbonate, manganese sulphate, salt.

Wirthmore Breeder Pellets
Fortified cod liver oil, dried skimmed milk, dried whey, liver meal, meat scraps, fish meal, dehydrated alfalfa meal, yellow corn meal, ground wheat, wheat bran, wheat standard middlings, ground oats, ground barley, calcium carbonate, manganese sulphate, salt.

Wirthmore Complete Egg Ration
Fortified cod liver oil, dried skimmed milk, dried whey, meat scraps, fish meal, soybean oil meal, corn gluten meal, dehydrated alfalfa meal, yellow corn meal, ground wheat, wheat bran, wheat standard middlings, ground oats, ground barley, calcium carbonate, manganese sulphate, salt.

Wirthmore Complete Growing Ration
Fortified cod liver oil, dried sklmmed milk, dried whey, meat scraps, fish meal, soybean oil meal, corn gluten meal, dehydrated alfalfa meal, yellow corn meal, ground wheat, wheat bran, wheat standard middlings, ground oats, ground barley, calcium carbonate, manganese sulphate, salt.

Wirthmore Complete Laying Ration
Fortified cod liver oil, dried skimmed milk, dried whey, liver meal, meat scraps, fish meal, dehydrated alfalfa meal, yellow corn meal, ground wheat, wheat bran, wheat standard middlings, ground oats, ground barley, calcium carbonate, manganese sulphate, salt.

Wirthmore 20 Dairy Ration
Old process linseed meal, soybean oil meal, cottonseed meal, corn gluten meal, corn gluten feed, corn distillers dried grains, yellow corn meal, ground oats, ground barley, wheat bran, wheat standard middlings, cane molasses, steamed bone meal, salt.

Wirthmore Dairy Feed with Beet Pulp
Old process linseed meal, soybean oil meal, cottonseed meal, corn gluten feed, yellow corn meal, ground oats, dried beet pulp, wheat bran, wheat standard middlings, cane molasses, steamed bone meal, salt.

Wirthmore 16 Dairy Ration
Old process linseed meal, soybean oil meal, corn gluten meal, corn gluten feed, corn distillers dried grains, yellow corn meal, hominy feed, crimped oats, ground oats, ground barley, wheat bran, wheat standard middlings, cane molasses, steamed bone meal, calcium carbonate, salt.

Wirthmore Finishing Pellets
Dried skimmed milk, meat scraps, soybean oil meal, alfalfa leaf meal, yellow corn meal, wheat standard middlings, wheat red dog, pulverized oats, pulverized barley, calcium carbonate, salt.

Wirthmore Growing Pellets
Fortified cod liver oil, dried skimmed milk, dried whey, meat scraps, fish meal, soybean oil meal, corn gluten meal, dehydrated alfalfa meal, yellow corn meal, ground wheat, wheat bran, wheat standard middlings, ground oats, ground barley, calcium carbonate, manganese sulphate, salt.

Wirthmore Laying Pellets
Fortified cod liver oil, dried skimmed milk, dried whey, meat scraps, fish meal, soybean oil meal, corn gluten meal, dehydrated alfalfa meal, yellow corn meal, ground wheat, wheat bran, wheat standard middlings, ground oats, ground barley, calcium carbonate, manganese sulphate, salt.

Wirthmore Poultry Flush
Fortified cod liver oil, dried whey, liver meal, meat scraps, fish meal, soybean oil meal, alfalfa leaf meal, yellow corn meal, wheat bran, wheat standard middlings, wheat red dog, ground oats, calcium carbonate.

Wirthmore 32% Ration
Old process linseed meal, soybean oil meal, cottonseed meal, corn gluten meal, corn gluten feed, corn distillers dried grains, wheat bran, cane molasses, steamed bone meal, calcium carbonate, salt.

Wirthmore Record Ration
Old process linseed meal, soybean oil meal, corn gluten meal, corn distillers dried grains, yellow corn meal, hominy feed, crimped oats, ground oats, ground barley, dried beet pulp, wheat bran, wheat standard middlings, cane molasses, fish meal, steamed bone meal, salt.

Wirthmore Special Broiler Feed
Fortified cod liver oil, dried whey, meat scraps, soybean oil meal, corn gluten meal, dehydrated alfalfa meal, yellow corn meal, wheat bran, wheat standard middlings, ground oats, ground barley, calcium carbonate, manganese sulphate, salt.

Wirthmore Super Pellets
Fortified cod liver oil, dried whey, liver meal, meat scraps, fish meal, soybean oil meal, dehydrated alfalfa meal, wheat bran, ground oats, ground barley, calcium carbonate, manganese sulphate, cane molasses.

Wirthmore Turkey Fattening Ration
Dried skimmed milk, dried whey, meat scraps, soybean oil meal, corn gluten meal, alfalfa leaf meal, yellow corn meal, wheat bran, wheat standard middlings, ground oats, ground barley, calcium carbonate, salt.

Wirthmore Turkey Growing Ration
Fortified cod liver oil, dried skimmed milk, dried whey, meat scraps, fish meal, soybean oil meal, corn gluten meal, alfalfa leaf meal, yellow corn meal, wheat bran, wheat standard middlings, ground oats, ground barley, calcium carbonate, manganese sulphate, salt.

Mrs. Annie P. Smith

Pentucket Laying Mash
Wheat bran, wheat middlings, corn meal, feeding oat meal, 50% meat scraps, 52% fish meal, alfalfa leaf meal, edible bone meal, charcoal, calcite flour, salt.

C. H. Symmes & Co.

The Ideal Dairy Ration
Wheat middlings, wheat bran, brewers grains, cottonseed meal, linseed meal, gluten meal, gluten feed, corn meal or hominy, molasses, salt, bone meal, calcium carbonate, ground barley.

Tioga Mills, Inc.

Tasty Laying Food
Dried skim milk, vacuum dried fish meal, meat and bone scrap, soybean oil meal, corn meal, wheat middlings, wheat bran, alfalfa leaf meal, potassium iodide, salt, pulverized oats, Colloidaltine (a mineral compound composed of calcium carbonate and the phosphates of calcium, iodine, iron, copper, manganese, sulphur, and 12 other rare minerals, all in colloidal form). (Wheat bran and wheat middlings may contain ground screenings not exceeding mill run.)

Ti-O-Ga 32% Feed
Wheat middlings, peanut oil meal, cottonseed meal, wheat bran, soybean oil meal, cane molasses, salt, potassium iodide, brewers dried grains, Colloidaltine (a mineral compound composed of calcium carbonate and the phosphates of calcium, iodine, iron, copper, manganese, sulphur, and 12 other rare minerals, all in colloidal form). (Wheat bran and wheat middlings may contain ground screenings not exceeding mill run.)

Ti-O-Ga E-Gee 20% Dairy Feed
Wheat bran, hominy feed, malt sprouts, brewers dried grains, corn gluten feed, wheat middlings, cane molasses, cottonseed meal, salt, potassium iodide, corn distillers grains, palm kernel oil meal, soybean oil meal, Colloidaltine (a mineral compound composed of calcium carbonate and the phosphates of calcium, iodine, iron, copper, manganese, sulphur, and 12 other rare minerals, all in colloidal form). Wheat bran and middlings may contain ground screenings not exceeding mill run.)

Jacob Trinley & Sons

Favorite Laying (Complete) Mash
Corn meal, meat scrap, dried milk, soy bean oil meal, wheat bran and middlings, ground oats, gluten, molasses, salt, calcium carbonate, bone meal, alfalfa meal, concentrated cod liver oil, bone charcoal, soluble sulphur, flowers of sulphur, potassium iodide, iron sulphate. copper sulphate.

Limerick Laying Mash
Soy bean oil meal, corn meal, meat scrap, alfalfa meal, ground oats, corn gluten feed, wheat bran, wheat middlings, cane molasses, oyster shell meal, charcoal, bone meal, cod liver oil, salt.

Trinley's 24% Dairy Feed
Cottonseed meal, linseed oil meal, malt sprouts, corn gluten meal, ground grain screenings, wheat bran, soy bean oil meal, corn distillers dried grains, cane molasses, bone meal, salt, corn meal, calcium carbonate, iodized salt.

Trinley's 20% Dairy Feed
Corn gluten feed, cottonseed meal, soy bean oil meal, corn meal, linseed oil meal, corn distillers dried grains, malt sprouts, ground grain screenings, brewers dried grains, cane molasses, bone meal, calcium carbonate, wheat bran, iodized salt.

United Cooperative Farmers, Inc.

United Farmers Egg Mash
Corn meal, wheat bran, wheat middlings, ground oats, meat scraps 50%, fish meal 55%, soy bean meal, alfalfa meal, gluten, oyster shell meal, salt, fortified cod liver oil.

United Farmers Grower
Corn meal, wheat bran, wheat middlings, pulverized oats, meat scraps 50%, dried skimmilk, soy bean meal, gluten feed, alfalfa meal, fish meal, oyster shell meal, salt, fortified cod liver oil and sardine oil.

United Farmers Layer
Corn meal, wheat bran, wheat middlings, pulverized oats, meat scraps 50%, dried skimmilk, soy bean meal, alfalfa meal, fish meal 55%, oyster shell meal, salt, fortified cod liver oil and sardine oil.

United Farmers Milk Pep
Cottonseed 41%, o. p. oil meal, yellow hominy or cracked corn meal, corn gluten feed, pure ground oats 38%, soy bean meal, standard or pure bran, corn distillers grains, molasses, calcium carbonate, salt.

United Farmers Milkmaker
Cane molasses, choice yellow hominy, 38% ground oats, standard or pure bran, choice cottonseed 41%, pure oil meal, corn gluten feed, soy bean meal, corn distillers grains, calcium carbonate, salt.

United Farmers Starter
Yellow corn meal, wheat bran, wheat middlings, pulverized oats, dried skimmilk, alfalfa leaf meal, fish meal 55%, meat scraps 50%, oyster shell meal, salt, fortified cod liver oil, manganese sulphate.

Unity Feeds, Inc.

Paycheck 24% Dairy Ration
Distillers dried grains, corn gluten feed, soybean oil meal, ground corn, ground oats, wheat and wheat bran processed, cottonseed meal, molasses, calcium carbonate, salt.

Paycheck 20% Dairy Ration
Distillers dried grains, corn gluten feed, soybean oil meal, wheat and wheat bran processed, cottonseed meal, ground corn, ground oats, molasses, calcium carbonate, salt.

Paycheck Laying Mash
Dried buttermilk, vitamin tested cod liver oil, alfalfa meal, corn meal, ground wheat, ground oats, wheat bran, wheat middlings, fish meal, meat scraps, linseed oil meal, soybean oil meal, calcium carbonate, manganese sulphate, salt.

Unity 24% Dairy Ration
Distillers dried grains, corn gluten feed, soybean oil meal, brewers dried grains, linseed oil meal, cottonseed meal, wheat bran, wheat middlings, malt sprouts, corn gluten meal, corn meal, fish meal, molasses, calcium carbonate, salt.

Unity 20% Dairy Ration
Corn gluten feed, linseed oil meal, brewers dried grains, soybean oil meal, cottonseed meal, distillers dried grains, malt sprouts, wheat bran, wheat middlings, corn meal, fish meal, molasses, calcium carbonate, salt.

Unity Growing Mash
Dried buttermilk, vitamin tested cod liver oil, alfalfa leaf meal, fish meal, meat scraps, linseed oil meal, wheat bran, wheat middlings, soybean oil meal, ground oats, ground wheat, corn meal, calcium carbonate, manganese sulphate, salt.

Unity Laying Mash
Dried buttermilk, vitamin tested cod liver oil, alfalfa leaf meal, soybean oil meal, fish meal, meat scraps, linseed oil meal, wheat bran, wheat middlings, ground oats, ground wheat, corn meal, calcium carbonate, manganese sulphate, salt.

Arthur Ventura Grain Co.

Ventura Laying Mash
Wheat bran, wheat middlings, corn meal, fish meal, meat scraps, alfalfa leaf meal, dried milk, soy bean meal, pulverized oats, feeding oat meal, shell meal, salt, Exadol cod liver oil.

C. P. Washburn Co.

"Made Right" Complete Broiler Ration
Fortified cod liver oil, whey and dried milk powder, corn meal, bran, middlings, wheat germ, oat meal, high grade meat scraps, fish meal, ground wheat, soya bean meal, gluten, alfalfa leaf meal, molasses, calcium carbonate, charcoal, salt, minerals, iron oxide, iodine, manganese.

"Made Right" Complete Layer
Fortified cod liver oil, whey and dried milk powder, corn meal, bran, middlings, wheat germ, oat meal, high grade meat scraps, fish meal, ground wheat, soya bean meal, gluten, alfalfa leaf meal, molasses, calcium carbonate, charcoal, salt, minerals, iron oxide, iodine, manganese.

"Made Right" 16% Dairy Feed
Corn meal, ground oats, cottonseed meal, wheat bran, soya bean meal, gluten, molasses, bone meal, calcium carbonate, salt, brewers grain, calcium carbonate, salt, manganese, iodine.

"Made Right" Dry Mash
Corn meal, wheat bran, wheat middlings, wheat germ, red dog, 2nd clear flour, ground oat meal, linseed oil meal, gluten feed, soya bean meal, ground wheat, meat scraps, fish meal, whey and dried milk powder, alfalfa leaf meal, molasses, charcoal, calcium carbonate, salt, cod liver oil, minerals, iron oxide, iodine, manganese.

"Made Right" Starting and Growing Feed
Corn meal, wheat bran, wheat middlings, wheat germ, gluten meal, oat meal, red dog, 2nd clear flour, meat scraps, ground wheat, soya bean meal, fish meal, whey and dried milk powder, alfalfa leaf meal, molasses, calcium carbonate, charcoal, salt, cod liver oil, minerals, iron oxide, iodine, manganese.

"Made Right" Sweet Dairy Feed
Corn meal, ground oats, cottonseed meal, linseed oil meal, wheat bran, soya bean meal, gluten, molasses, bone meal, calcium carbonate, salt, brewers grain, manganese, iodine, calcium carbonate.

Wayne County Grangers Feed Corp.

Clyde 20% Dairy Feed
Corn gluten feed, corn distillers grains, o. p. linseed oil meal, brewers grains, corn meal or hominy feed, ground oats, cottonseed meal, wheat bran (may contain screenings), choice malt sprouts, soybean oil meal, ground limestone, cane molasses, salt, steamed bone meal.

Cornell Mash
Wheat bran, wheat middlings, corn meal, ground oats, meat scraps, skim milk, dried whey, cod liver oil, salt.

Milkproducer 24% Dairy Feed
Corn gluten feed, corn distillers grains, o. p. linseed oil meal, brewers grains, choice cottonseed meal, wheat bran (may contain screenings), soybean oil meal, hominy feed or corn meal, ground oats, cane molasses, malt sprouts, steamed bone meal, ground limestone, salt.

Milkproducer 20% Dairy Feed
Corn meal, choice malt sprouts, soybean oil meal, corn gluten feed, ground oats, standard wheat bran (may contain mill run screenings), rye middlings, recleaned ground bolted grain screenings, molasses, iodized salt, calcium carbonate.

H. K. Webster Co.

Blue Seal All-Mash Growing Ration
Coarse ground No. 2 yellow corn, fine ground heavy oats, pure wheat bran, wheat flour middlings, high grade meat scraps, high grade fish meal, dried skim milk, alfalfa leaf meal, corn gluten meal, P. R. cane molasses, calcium carbonate, salt, fortified cod liver oil.

Blue Seal Breeders' Mash
Dehydrated alfalfa leaf meal, dried skim milk with lactoflavin supplement, pure natural cod liver oil, wheat germ oil, h. g. meat and liver meals, 55% fish meal, corn gluten meal, P. R. cane molasses, No. 2 yellow corn meal, pure wheat bran, wheat flour middlings, fine ground heavy oats, ground rolled oats, ground barley, salt, calcium carbonate.

Blue Seal Breeders All-Mash Ration
Dehydrated alfalfa leaf meal, dried skim milk with lactoflavin supplement, fortified cod liver oil, wheat germ oil, P. R. cane molasses, h. g. meat and liver meals, high grade fish meal, corn gluten meal, No. 2 yellow corn meal, ground fancy wheat, fine ground heavy oats, pure wheat bran, wheat flour middlings, salt, calcium carbonate.

Blue Seal Broiler Ration
Dried skim milk, h. g. meat scraps, 55% codfish meal, alfalfa leaf meal, corn gluten meal, No. 2 yellow corn meal, pure wheat bran, wheat flour middlings, fine ground heavy oats, P. R. cane molasses, calcium carbonate, salt, cod liver oil.

Blue Seal Chick Starter
Coarse ground No. 2 yellow corn, fine ground heavy oats, ground barley, pure wheat bran, corn gluten meal, wheat flour middlings, 60% h. g. meat scraps, 65% fish meal, vacuum process, dried skim milk, dehydrated alfalfa leaf meal, calcium carbonate, salt, manganese sulphate, cod liver oil.

Blue Seal "20" Dairy Ration
Old process linseed oil meal, soy bean oil meal, ground oats, malt sprouts, corn oil meal, gluten feed, choice cottonseed meal, hominy feed, wheat bran, corn distillers grains, dried brewers grains, P. R. cane molasses, B. S. mineral mixture (white fish meal, edible bone meal, calcium carbonate, dicalcium phosphate, potassium iodide, salt).

Blue Seal "18" Dairy Ration
Fancy crimped oats, fancy ground oats, linseed oil meal (crushed cake), soy bean oil meal (pea size), steam rolled barley, hominy feed, wheat bran, corn oil meal, wheat middlings, P. R. cane molasses, B. S. mineral mixture (white fish meal, edible bone meal, calcium carbonate, dicalcium phosphate, potassium iodide, salt).

Blue Seal Egg Mash
No. 2 yellow corn meal, fine ground heavy oats, pure wheat bran, wheat flour middlings, high grade meat scraps, 55% fish meal, dried skim milk, alfalfa leaf meal, P. R. cane molasses, corn gluten meal, calcium carbonate, salt, cod liver oil.

Blue Seal Fleshing Pellets
Yellow corn meal, corn oil meal, ground oat groats, fine ground oats, pure wheat middlings, soy bean oil meal, h. g. meat scraps, dried skim milk, P. R. cane molasses, calcium carbonate, salt, cod liver oil.

Blue Seal Growing Mash
Dried skim milk, h. g. meat scraps, 55% codfish meal, alfalfa leaf meal, corn gluten meal, No. 2 yellow corn meal, pure wheat bran, wheat flour middlings, fine ground heavy oats, ground barley, P. R. cane molasses, calcium carbonate, salt, cod liver oil.

Blue Seal Hom-Mix 24% Dairy Ration
Choice cottonseed meal, soy bean oil meal, corn oil meal, malt sprouts, corn gluten meal, oat feed, wheat bran, hominy feed, peanut skins, germs and meal, linseed oil meal, dried brewers grains, P. R. cane molasses, B. S. mineral mixture (white fish meal, edible bone meal, calcium carbonate, dicalcium phosphate, potassium iodide, salt).

Blue Seal Improved All-Mash Ration
Coarse ground No. 2 yellow corn, fine ground heavy oats, pure wheat bran, wheat flour middlings, high grade meat scraps, high grade fish meal, dried skim milk, alfalfa leaf meal, corn gluten meal, P. R. cane molasses, calcium carbonate, salt, fortified cod liver oil.

Blue Seal Improved Balanced Ration
Old process linseed oil meal, soy bean oil meal, ground oats, malt sprouts, corn gluten meal, choice cottonseed meal, hominy feed, wheat bran, corn distillers grains, dried brewers grains, corn oil meal, P. R. cane molasses, B. S. mineral mixture (white fish meal, edible bone meal, calcium carbonate, dicalcium phosphate, potassium iodide, salt).

Blue Seal Laying Mash
No. 2 yellow corn meal, pure wheat bran, fine ground heavy oats, h. g. meat scraps, corn gluten meal, wheat flour middlings, ground barley, ground fancy wheat, P. R. cane molasses, alfalfa leaf meal, dried skim milk, 55% codfish meal, salt, calcium carbonate, cod liver oil.

Blue Seal Special 20% Dairy Ration
Choice cottonseed meal, soy bean oil meal, corn oil meal, malt sprouts, gluten feed, oat feed, wheat bran, hominy feed, peanut skins, germs and meal, linseed oil meal, dried brewers grains, corn distillers grains, P. R. cane molasses, B. S. mineral mixture (white fish meal, edible bone meal, calcium carbonate, dicalcium phosphate, potassium iodide, salt).

Est. M. G. Williams

Williams' Balanced Ration
Corn meal or hominy, linseed oil meal, cottonseed meal, ground oats, gluten feed, dried brewers grains, wheat feed, soy bean meal, calcium carbonate, salt.

Williams' Chick Starter
Corn meal, bran, middlings, feeding oatmeal, alfalfa leaf meal, soy bean meal, dried skim milk, meat scraps, fish meal, calcium carbonate, cod liver oil, manganese, salt.

Williams' Growing Mash
Corn meal, bran, middlings, ground oats, soy bean meal, dried skim milk or dried whey, alfalfa meal, fish meal, meat scraps, calcium carbonate, salt, cod liver oil, manganese.

Williams' Laying Mash
Corn meal, bran, middlings, ground oats, soy bean meal, meat scraps, fish meal, leaf meal, dried skim milk, calcium carbonate, salt, cod liver oil, manganese.

Stanley Wood Grain Co.

Bliss Dairy Ration
Corn meal (or hominy), cottonseed meal, wheat bran, soybean oil meal, linseed oil meal, wheat middlings, gluten meal, gluten feed, table salt, edible bonemeal, calcium carbonate (beet pulp).

Preferred Complete Growing Ration
Cod liver oil, dried skim milk, dried whey, lactoflavin concentrate, dried fish meal, whole oat groats, meat scraps, alfalfa leaf meal, yellow corn meal, soybean oil meal, ground wheat, corn gluten meal, ground barley, wheat bran, wheat middlings, feeding oatmeal, calcium carbonate, salt, manganese sulfate.

Preferred Complete Laying Ration
Cod liver oil, dried whey, soybean oil meal, lactoflavin concentrate, dried skim milk, dried fish meal, whole oat groats, meat scraps, alfalfa leaf meal, yellow corn meal, ground wheat, pulverized oats, wheat bran, wheat middlings, calcium carbonate, table salt, manganese sulfate.

Preferred Growing Feed
Meal, bran, middlings, reddog, ground barley, soybean oil meal, alfalfa leaf meal, dried skim milk, meat scraps, dried fish meal, salt, calcium carbonate, cod liver oil, manganese sulfate, lactoflavin concentrate, dried whey, ground oats, yeastified distillers grains (Produlac).

Preferred Laying Mash
Dried skim milk, dried whey, lactoflavin concentrate, fish meal, meat scraps, alfalfa leaf meal, wheat bran, yellow corn meal, soybean oil meal, pulverized oats, feeding oatmeal, wheat middlings, salt, calcium carbonate, cod liver oil, manganese sulfate.

Preferred Starting Feed
Cod liver oil, lactoflavin concentrate, dried skim milk, dried whey, soybean oil meal, alfalfa leaf meal, ground oat groats, fish meal, meat scraps, yellow corn meal, wheat bran, wheat flour, middlings, salt, calcium carbonate, manganese sulfate.

Woods Dairy Ration
Cottonseed meal, wheat middlings, yellow corn meal (or hominy), soybean oil meal, ground oats, old process linseed oil meal, corn gluten feed, dried beet pulp, wheat bran, salt, calcium carbonate.

Worcester Grain & Coal Co.

Just Right Chick Starter
Standard middlings, corn meal, wheat bran, feeding oatmeal, dried skimmilk, alfalfa leaf meal, fish meal, meat scraps, oyster shell meal, salt, calcium phosphate, cod liver oil.

Just Right 24% Dairy Ration
Old process linseed oil meal, choice cottonseed meal, choice white or yellow hominy, corn gluten feed, wheat bran, Diamond gluten meal, ground oats or crushed oats, soy bean oil meal, 1% calcium phosphate, 1% salt, with or without molasses.

Just Right 20% Dairy Ration
Old process linseed oil meal, choice cottonseed meal, choice white or yellow hominy, corn gluten feed, wheat bran, Diamond gluten meal, ground oats or crushed oats, soy bean oil meal, 1% calcium phosphate, 1% salt, with or without molasses.

Just Right Growing Mash
Standard middlings, corn meal, wheat bran, feeding oat meal, dried skimmilk, alfalfa leaf meal, fish meal, meat scraps, oyster shell meal, salt, calcium phosphate, cod liver oil

Just Right Laying Mash
Dried skimmilk, corn meal, standard middlings, standard bran, meat scraps, ground oats, fish meal, alfalfa leaf meal, soy bean meal, oyster shell meal, 1% salt, 1% calcium carbonate, cod liver oil.

Assays of Vitamin D Carriers — Oils and Oil Products

Tests of this character are included in the Control Bulletin for the first time. The assays were made by Leonard R. Parkinson, Jr., of the nutrition laboratory, with Professors Fellers and Parkhurst acting as advisors. The material used was taken by the official feed inspector from stocks of dealers, manufacturers and consumers throughout the State. Association of Official Agricultural Chemists method for assaying Vitamin D carriers was used. While in general the tests indicated agreement with guarantee, the number found not in agreement warrants a continuance of the work.

Oil Number	Manufacturer and Trade Name	Guaranteed Units of Vitamin D	Remarks
	F. E. Booth, Inc.		
6	Sardiline (*a*)	100	Guarantee sustained
3A	Sardiline (High Potency) (*b*)	400	Guarantee sustained
25	Sardiline (High Potency) (*a*)	400	Guarantee sustained
	Borden Co.		
*11	Flaydry (*c*)	40	Guarantee not sustained
28	Flaydry (*c*)	80	Guarantee sustained
27	Flaydry (*c*)	120	Guarantee sustained
	California Packing Corporation		
16A	Biotol Sardine Oil (*b*)	85	Guarantee sustained
	Consolidated Products Co.		
19	Chick Emulsion (*b*)	1800	Guarantee sustained
	Eastern States Farmers' Exchange		
20	Eastern States Sardine Oil (*b*)	400	Guarantee sustained
*34	Eastern States Sardine Oil (*b*)	400	Guarantee sustained
	Gorton-Pew Fisheries Co., Ltd.		
*22	Gorton's Cod Liver Oil (*b*)	150	Guarantee not sustained
*15	Gorton's Cod Liver Oil (*a*)	200	Guarantee sustained
2A	Gorton's Cod Liver Oil (*a*)	200	Guarantee sustained
9A	Gorton's Cod Liver Oil (*b*)	250	Guarantee sustained
*16	Gorton's Cod Liver Oil (*a*)	400	Guarantee sustained
4A	Gorton's Cod Liver Oil (*a*)	400	Guarantee sustained
37	Gorton's Cod Liver Oil (*a*)	400	Guarantee sustained
23	Gorton's Cod Liver Oil Meal Blend (*c*)	–	Will protect at 8.5 units per 100 grams of feed
	Gunning & Gunning, Inc.		
13A	VI Test (*a*)	400	Guarantee sustained
7	VI Test (*a*)	400	Guarantee sustained
	Health Products Co.		
17A	Health Products Cod Liver Oil (*b*)	85	Guarantee sustained
	Maine Fish Meal Co.		
*13	Maine Fish Meal (*c*)	–	Will protect at 8.5 units per 100 grams of feed
29	Maine Fish Meal (*c*)	–	Will protect at 8.5 units per 100 grams of feed
	Marden-Wild Corporation		
18A	Mardol (*b*)	400	Guarantee sustained
*1	Mardol (*a*)	400	Guarantee sustained
26	Mardol (*a*)	400	Guarantee sustained
	J. C. Martens & Co.		
7A	Norge U. S. P. Cod Liver Oil (*a*)	225	Guarantee not sustained
8A	Norge U. S. P. Cod Liver Oil (*a*)	250	Guarantee not sustained
	McKesson-Robbins		
15A	Isdahl's Cod Liver Oil (*b*)	100	Guarantee sustained
32	British Cod Liver Oil (*a*)	100	Guarantee sustained
	National Oil Products Co.		
2	Nopco Cod Liver Oil (*a*)	85	Guarantee sustained
*9	Nopco X (*b*)	200	Guarantee sustained
36	Nopco X (*b*)	200	Guarantee sustained
6A	Nopco XX (*b*)	400	Guarantee sustained
10	Nopco XX (*b*)	400	Guarantee sustained
*3	Nopco XX (*b*)	400	Guarantee sustained
	Silmo Chemical Corporation		
24	Silmo XX (*a*)	400	Guarantee sustained
	E. R. Squibb & Co.		
5A	Exodol (*a*)	400	Guarantee sustained
18	Exodol (*b*)	400	Guarantee sustained
38	Exodol (*a*)	400	Guarantee sustained
	Stoughton Grain Co.		
14A	Bay State Cod Liver Oil (*a*)	150	Guarantee sustained
*21	Bay State Cod Liver Oil (*a*)	150	Guarantee sustained
	Vitamol, Inc.		
17	Vitamol (*a*)	400	Guarantee sustained
	White Laboratories, Inc.		
1A	Clo-trate (*a*)	400	Guarantee sustained
4	Clo-trate (*b*)	400	Guarantee sustained

*Retested. *a* Sample taken from unsealed container. *b* Sample taken from sealed container. *c* Sample taken from sewed bags.

Federal Grain Standards — Corn and Oats

While the Federal Government provides for standards of purity for many cereal grains and seed, those of greatest interest to local agriculture are corn and oats. Many purchasers of grain are not familiar with the standards for grain which they purchase.

Whole grains shipped to dealers in car lots may have a Federal Certificate of Inspection attached to the bill of lading or the grain may be sold uninspected under the general term of "sample grade." Where quality is questioned by the prospective purchaser, the dealer should be asked to produce the certificate of inspection and identify it with the grain offered.

For some time corn and oats purchased by the State for its various State-owned farms have been bought under specification and grade subject to inspection by Regulatory Service at the Experiment Station and conclusions very largely result from experience with this work.

Corn

The general definition for corn as found in the Federal Grain Standards is: — "Corn shall be any grain which consists of 50 per cent or more of shelled corn of the dent or flint varieties, and may contain not more than 10 per cent of other grains for which standards have been established under the provisions of the United States Grain Standards Act."

Under the general definition classes and grades are provided by which corn is generally sold. There are six grades for commercial corn. Those most commonly offered in New England markets are Grades 1, 2, and 3.

For the poultryman or dairyman, the No. 2 grade is probably the most desirable. No. 1 is essentially a planting grade and Nos. 3, 4 and 5 have undesirable qualities which make their purchase inadvisable.

The requirements for Grade No. 2 are: —

Test weight per bushel not less than	53 lbs.
Water not more than	15.5%
Cracked corn and foreign material not more than	3.0%
Damaged kernels:	
Total	5.0%
Heat damaged	0.2%

Test weight per bushel. — Immature corn is light in weight especially if dried down to conform to grade requirements in water content. Light corn seldom finds its way into the local markets as whole grain and is probably ground into meal where its true condition is more easily disguised.

Water. — The amount of corn which loses its rating as No. 2 on account of water content depends very largely on the season in which it is grown and more especially on the time of year in which it is sold. Where corn is well matured on the stalk before killing frosts, the water content is not a problem if the grain is given an opportunity to cure in the crib before being offered. In years when the old crop is well out of the market, it may be difficult to find new corn offered in the late fall and early winter that will grade better than No. 3. Corn with a high water content will not keep in warm storage without decomposition and heating. With the large carry-over of corn for the past two years, water content presents no great problem for the consumer.

Cracked corn and foreign material consists of small pieces of corn and material other than corn. A high cracked-corn content might conceivably result where corn was immature, with a high water content, and had been artificially dried, resulting in a soft brittle product easily broken in handling.

Damaged kernels are defined as kernels or pieces of kernels of corn which are heat damaged, sprouted, frosted, badly ground damaged, badly weather damaged or otherwise materially damaged, all of which can be attributed to poor condition of the grain at the outset or to poor handling. For No. 2 corn only 0.2 per cent of heat damage is allowed. A small percentage of dark-colored kernels in corn not only is an offense to the eye, but may indicate an unsatisfactory condition which will gradually grow worse.

Oats

A point not generally understood by the average purchaser is the large number of divisions and subdivisions of Federal grades of oats and oat-like material in some of which cultivated oats does not even predominate.

Oats "shall be any grain which consists of 80 per cent or more of cultivated oats. Oats may contain not more than 10 per cent of wild oats." At their worst oats might contain the following and still be properly designated as Grade 4.

Test weight per bushel	24 lbs.
Cultivated oats	80.0%
Wild oats	10.0%
Foreign material	5.0%
Other grain	5.0%

Feed Oats "shall be any grain which consists of either (a) 30 per cent or more, but less than 80 per cent of cultivated oats, but not less than 65 per cent of cultivated and wild oats combined, or (b) 80 per cent or more of cultivated oats oats and more than 10 per cent of wild oats. Feed oats may contain not more than 25 per cent of other grains and may contain not more than 10 per cent of foreign material which 10 per cent may include not more than 5 per cent of fine seeds." The poorest grade of feed oats might conceivably contain the following:

Cultivated oats	30.0%
Wild oats	35.0%
Weed seed	5.0%
Foreign material	5.0%
Other grain	25.0%

Mixed Feed Oats "shall be any grain which consists of less than 30 per cent of cultivated oats, but either (a) not less than 65 per cent cultivated and wild oats combined, or (b) not less than 65 per cent of wild oats; may contain not more than 25 per cent of other grains; and may contain not more than 10 per cent of foreign material, which 10 per cent may include not more than 5 per cent of fine seed." A poor grade of mixed feed oats might contain:

Cultivated oats	None
Wild oats	65.0%
Weed seed	5.0%
Foreign material	5.0%
Other grain	25.0%

The purchaser should not be confused as to the very real difference between oats, feed oats, and mixed feed oats.

The present State specifications for State purchased oats are for Unsulphured No. 2 Heavy.

Test weight per bushel	35 lbs. Minimum
Sound cultivated oats	94.0% Minimum
Heat damaged kernels	0.3% Maximum
Foreign material	3.0% Maximum
Wild oats	3.0% Maximum

This is suggested as an economical grade for the average purchaser. There are experimental data which demonstrate that the heavier oats are not materially higher in feeding value than those of medium grade.

The most common cereal grain found with oats is barley, possibly because it may be found growing naturally with oats and again because it is of material assistance in bringing up the test weight per bushel of light oats, barley weighing as it does 45 to 50 pounds to the bushel.

The presence of material other than oats is not so serious in the whole grain, where the purchaser can obtain some inkling by merely looking at a sample, as it is in the ground product. The presence of barley and other material in ground oats is not so readily detected and it is believed that much of the ground oats offered is made from oats that will grade as No. 4, which may contain as low as 80 per cent cultivated oats.

Barley contains less fat and fiber than does oats. Following are the analyses of several brands of ground oats collected in the course of inspection, compared with the average analysis of 33 samples of oats with a purity of 95 per cent or better. They are presented here because they deviate so much in average fat content from oats of known purity.

Number of Samples	Ground or Pulverized Oats	Water (Per-cent)	Protein (Per-cent)	Fat (Per-cent)	Nitrogen Free Extract (Per-cent)	Fiber (Per-cent)	Ash (Per-cent)
*33	Average of 33 samples, 95% purity or better	10.3	12.1	4.8	59.5	10.0	3.3
3	Doughboy Mills, New Richmond, Wis.	10.4	12.4	3.1	58.5	11.9	3.7
3	Farmers Service Bureau, Baltimore, Md.	10.0	12.6	2.5	59.1	11.8	4.0
4	Fruen Milling Co., Minneapolis, Minn.	11.0	13.2	3.0	59.7	10.5	3.6
9	Hood Mills Co., Baltimore, Md.	10.5	13.9	2.6	59.6	10.0	3.4

*Test weight per bushel ranged from 31.3 to 45.3 pounds, with an average of 37.7 pounds.

Two suggestions are presented:

For the Consumer. — In case of doubt as to quality, ask the seller to produce the certificate of inspection and to identify it with the grain offered.

For the Dealer. — The grade of oats from which ground oats and feeding oat meal are made should be designated on the tag.

Directory of Manufacturers Who Registered Feeding Stuffs for Sale in Massachusetts in 1940

Aeme-Evans Co., Indianapolis, Ind.
Albers Bros. Milling Co., Seattle, Wash.
E. T. Allen Co., P. O. Box 951, Atlanta, Ga.
Allied Mills, Inc., Chicago, Ill.
American Maize-Products Co., 100 East 42nd St., New York, N. Y.
A. P. Ames & Co., 10 Walnut St., Peabody, Mass.
Arcady Farms Milling Co., 223 West Jackson Blvd. Chicago, Ill.
Archer-Daniels-Midland Co., Minneapolis, Minn.
Asheraft-Wilkinson Co., Atlanta, Ga. (Registered also for Rio Grande Valley Citrus Exchange.)
W. E. Atkinson Co., 27 Water St., Newburyport, Mass.
B. & B. Dairy Co., Inc., Margaretville, N. Y.
Edward R. Bacon Grain Co., 177 Milk St., Boston, Mass.
E. W. Bailey & Co., Montpelier, Vt.
Barber & Bennett, Inc., Albany, N. Y.
Beacon Milling Co., Inc., Cayuga, N. Y.
Berkshire Coal & Grain Co., Inc., North Adams, Mass.
Bisbee Linseed Co., Inc., Amsterdam, N. Y.
Blatchford Calf Meal Co., Waukegan, Ill.
Blatchley & Ballard, Inc., 158 Russell St., Middletown, Conn.
Borden Co., 350 Madison Ave., New York, N. Y.
Borden Grain Co., 26 Granite St., Taunton, Mass.
C. W. Brister & Son, 201 North St., Auburn, Mass.
A. H. Brown & Bros., Boston, Mass. (Agents for Mellin's Food Company of North America.)
Brown Bros., Bondsville, Mass.
George B. Brown Corporation, Ipswich, Mass.
Buckeye Cotton Oil Co., Cincinnati, Ohio
C. W. Burckhalter, Inc., 156 Franklin St., New York, N. Y.
Canada Linseed Oil Mills, Ltd., Montreal, Canada
A. B. Caple Co., Toledo, Ohio
Center Milk Products Co., Middlebury Center, Penn.
Central Soya Co., Inc., 300 Old-First Bank Bldg., Ft. Wayne, Ind.
Chapin & Co., Hammond, Ind.
Charles River Feed Stores, Inc., Box 117, Wayland, Mass.
Checkerboard Elevator Co., St. Louis, Mo. (Registered by Ralston Purina Co.)
Checkerboard Feed Store, Ralston Purina Co., Prop., St. Louis, Mo.
S. J. Cherry & Sons, Ltd., Preston, Canada
Clinton Co., Clinton, Iowa
Coatsworth & Cooper, 67 Yonge St., Toronto, Canada
Colfax Packing Co., 34 Colfax St., Pawtucket, R. I.
Commander-Larabee Milling Co., Minneapolis, Minn.
Community Feed Stores, South Deerfield, Mass.
Consolidated Chemical Industries, Inc., 630 Fifth Ave., New York, N. Y.
Consolidated Rendering Co., 178 Atlantic Ave., Boston, Mass.
Continental Distilling Corporation, 1800 West Lehigh Ave., Philadelphia, Penn.
Copeland Flour Mills, Ltd., Midland, Ontario, Canada
Corn Products Sales Co., 17 Battery Place, New York, N. Y.
Nicolas Courcy Grain Co., 12 Waverly St., Taunton, Mass.
Cover & Palm Co., 150 Middle St., Lowell, Mass.
Chas. M. Cox Co., 177 Milk St., Boston, Mass. (Registered for Maple Leaf Milling Co., Ltd.)
Crawford Brothers, Inc., Walton, N. Y.
Dairymen's League Co-Operative Association, Inc., 11 West 42nd St., New York, N. Y.
Dawe's Vitamelk Co., 4800 South Richmond Ave., Chicago, Ill.
Decatur Milling Co., Inc., Decatur, Ill.
Delaware Mills, Inc., Deposit, N. Y.
Denver Alfalfa Milling & Products Co., Lamar, Col.
Deutsch & Sickert Co., Milwaukee, Wis.
Frank Diauto, Randolph, Mass.
F. Diehl & Son, Inc., Wellesley, Mass.
Dietrich & Gambrill, Inc., Frederick, Md.
Drackett Products Co., 5020 Spring Grove Ave., Cincinnati, Ohio
Dreyer Commission Co., 300 Merchants Exchange Bldg., St. Louis, Mo.
Eagle Roller Mill Co., New Ulm, Minn.
East Bridgewater Farmers Exchange, Inc., East Bridgewater, Mass.
Eastern Grain Co., Bridgewater, Mass.
Eastern Semolina Mills, Inc., Baldwinsville, N. Y.
Eastern States Farmers' Exchange, Box 1482, Springfield, Mass.
B. A. Eckhart Milling Co., 1300 Carroll Ave., Chicago, Ill.
Economy Grocery Stores Corporation, 393 D Street, Boston, Mass.
M. W. Ellis, 19 Walnut St., Peabody, Mass.
Elmore Milling Co., Inc., Oneonta, N. Y.
John W. Eshelman & Sons, Lancaster, Penn.
Evans Milling Co., Indianapolis, Ind.
Excelsior Milling Co., Minneapolis, Minn.
Farm Service Co., Fitchburg, Mass.
Farmers Feed Co., Buffalo, N. Y.
Farmers Feed Co., 532 East 76th St., New York, N. Y.
Federal Mill, Inc., Lockport, N. Y.
Fernando Valley Milling & Supply Co., 6104 Van Nuys Blvd., Van Nuys, Cal.
Ferneau Grain Co., Blanchester, Ohio
Finger Lakes & Hudson Flour Mills, Inc., 7-9 Madison St., Troy, N. Y.
First National Stores, Inc., 5 Middlesex Ave., Somerville, Mass.
Flory Milling Co., Inc., Bangor, Penn.
Ford Motor Co., 3674 Schaefer Road, Dearborn, Mich.
J. A. Forrest Co., 538 Midland Bank Bldg., Minneapolis, Minn.
Fred A. Fountain, Inc., 355 Tremont St., Taunton, Mass.
Dean S. French, 17 Columbia St., Stoughton, Mass.
Paul Fuller & Sons, Salem, Mass.

Funk Bros. Seed Co., Bloomington, Ill.
J. B. Garland & Son, Inc., Worcester, Mass.
General Foods Corporation, Battle Creek, Mich.
General Foods Corporation, Corn Mill Division, Kankakee, Ill.
General Mills, Inc., Minneapolis, Minn.
W. K. Gilmore & Sons, Inc., Walpole, Mass.
Glidden Co., Soya Products Division, 5165 West Moffat St., Chicago, Ill.
Gloucester Dehydrating Process Co., Gloucester, Mass.
Golden Eagle Milling Co., Petaluma, Cal. (Registered by Western Condensing Co.)
Goode Grain Co., 452 Broadway, Lowell, Mass.
Gorton-Pew Fisheries Co., Ltd., Gloucester, Mass.
Grand Isle County Co-Operative Creamery Association, Inc., Grand Isle, Vt.
Grand Union Co., 233 Broadway, New York, N. Y.
D. H. Grandin Milling Co., Jamestown, N. Y.
Great Atlantic & Pacific Tea Co., New York, N. Y.
Green Acre Farms, Nazareth, Penn.
Gwinn Milling Co., Columbus, Ohio
Hales & Hunter Co., 166 West Jackson Blvd., Chicago, Ill.
D. Harbeck & Sons, 405 Earl St., New Bedford, Mass.
Hecker H-O Division of Hecker Products Corporation, Buffalo, N. Y.
Hercules Powder Co., Dairy Products Division, 228 North LaSalle St., Chicago, Ill.
D. B. Hodgkins' Sons, Gloucester, Mass.
Hoosier Soybean Mills, Inc., Marion, Ind.
Horvitz Grain Co., 742 Acushnet Ave., New Bedford, Mass.
Hubinger Co., Keokuk, Iowa
Humphreys-Godwin Co., Memphis, Tenn.
Illinois Cereal Mills, Inc., Paris, Ill.
Independent Tallow Co., Inc., 39 Cedar St., Woburn, Mass.
International Milling Co., Minneapolis, Minn.
International Vegetable Oil Mill, Subsidiary of Southern Cotton Oil Co.
Ismert-Hincke Milling Co., Kansas City, Mo.
Jaquith & Co., Woburn, Mass.
Kansas Flour Mills Corporation, Kansas City, Mo.
Kasco Mills, Inc., Waverly, N. Y.
Kellogg Co., Battle Creek, Mich.
Spencer Kellogg & Sons, Inc., 98 Delaware Ave., Buffalo, N. Y.
Keystone Dairy Co., 535 Carlton Ave., Brooklyn, N. Y.
H. H. King Flour Mills Co., Minneapolis, Minn.
Kraft Phenix Cheese Corporation, 500 Peshtigo Court, Chicago, Ill.
Chas. A. Krause Milling Co., Milwaukee, Wis.
Lake of the Woods Milling Co., Ltd., Montreal, Canada
Lakeside Milling Co., Ltd., Esplanade at Princess St., Toronto, Ontario, Canada.
Larabee Flour Mills Co., Kansas City, Mo.
Larrowe Milling Co., Division of General Mills, Inc., Box 68, North End Station, Detroit, Mich.
John T. Lewis & Bros. Co., 910 Widener Bldg., Philadelphia, Penn.
L. B. Lovitt & Co., Memphis, Tenn.
A. S. MacDonald Commission Co., 404 Grain & Flour Exchange, Boston, Mass. (Registered for Parrish & Heimbecker, Ltd.)
Maine Fish Meal Co., Portland, Maine
Mansfield Coal & Grain Co., Mansfield, Mass.
Mansfield Milling Co., 1 Samoset Ave., Mansfield, Mass.
Maple Leaf Milling Co., Ltd., Toronto, Ontario, Canada. (Registered by Chas. M. Cox Co.)
Maritime Milling Co., Inc., Buffalo, N. Y.
Meadow Brook Farms, John A. Miller, Prop., Nazareth, Penn.
Mellin's Food Company of North America, 41 Central Wharf, Boston, Mass. (A. H. Brown & Bros., Agents.)
Merrimack Farmers' Exchange, Inc., Concord, N. H.
Middlesex County Farm Bureau Association, 131 Lexington St., Waltham, Mass.
Miner-Hillard Milling Co., Wilkes-Barre, Penn.
Mississippi Valley Grain & Feed Co., Greenville, Miss.
Geo. Q. Moon & Co., Inc., Binghamton, N. Y.
Jas. F. Morse & Co., 11 Horace St., Somerville, Mass.
Muir & Co., 408 Produce Exchange, New York, N. Y.
National Biscuit Co., Shredded Wheat Bakeries, Niagara Falls, N. Y.
National Distillers Products Corporation, 120 Broadway, New York, N. Y.
Neumond Co., St. Louis, Mo.
New England Dairies, Inc., 142 Cambridge St., Charlestown, Mass.
New England Grain Co., 390 Commercial St., Portland, Maine.
New England Rendering Co., Brighton, Mass.
New England Retail Grain Dealers Cooperative Association, Inc., Springfield, Mass.
Northern Milk Corporation, Adams, N. Y.
Ogden Grain Co., Utica, N. Y.
Ogilvie Flour Mills Co., Ltd., Montreal, Canada
Pabst Brewing Co., 917 West Juneau Ave., Milwaukee, Wis
Palm Grain Co., 1081 Gorham St., Lowell, Mass.
Park & Pollard Co., 356 Hertel Ave., Buffalo, N. Y.
George H. Parker Grain Co., Danvers, Mass.
Parrish & Heimbecker, Ltd., Toronto, Canada. (Registered by A. S. MacDonald Commission Co.)
Patent Cereals Co., Geneva, N. Y.
Pecos Valley Alfalfa Mill Co., Chandler, Ariz.
Penick & Ford Ltd., Inc., Cedar Rapids, Iowa.
Perkins Oil Co., Memphis, Tenn.
Pillsbury Flour Mills Co., Minneapolis, Minn.
Maurice Pincoffs Co., 1 Main St., Houston, Texas
Pittsburgh Plate Glass Co., Linseed Oil Division, Newark, N. J.
W. N. Potter Grain Stores, Inc., Greenfield, Mass.
R. C. Pratt, 68 King St. E., Toronto, Ontario, Canada
H. C. Puffer Co., Springfield, Mass.
Quaker Oats Co., 141 West Jackson Blvd., Chicago, Ill.
Quincy Soybean Products Co., Quincy, Ill.

Ralston Purina Co., St. Louis, Mo. (Registered also for Checkerboard Feed Store.)
John Reardon & Sons, Division of Wilson & Co., Inc., Cambridge, Mass.
Rice Laboratories, Inc., Dassel, Minn.
D. F. Riley, North Hatfield, Mass.
Rio Grande Valley Citrus Exchange, Weslaco, Texas. (Registered by Ashcraft-Wilkinson Co.)
Rodney Milling Co., Kansas City, Mo.
Edward L. Roy, Anawan St., Rehoboth, Mass.
Russell-Miller Milling Co., Minneapolis, Minn.
Ryther & Warren Co., Belchertown, Mass.
St. Albans Grain Co., St. Albans, Vt. (Registered also for Taft Bros.)
St. Lawrence Flour Mills Co., Ltd., 2110 Notre Dame St., W., Montreal, Canada
Schenley Distilleries, Inc., 350 Fifth Ave., New York, N. Y.
Schoencek Farms, Inc., Nazareth, Penn.
Joseph E. Seagram & Sons, Inc., Louisville, Ky.
Sherwin-Williams Co., 101 Prospect Ave. N. W., Cleveland, Ohio
W. J. Small Co., Inc., Neodesha, Kan.
Mrs. Annie P. Smith, 102 Hale St., Haverhill, Mass.
Smith, Bodfish, Swift Co., Vineyard Haven, Mass.
Southern Cotton Oil Co., P. O. Box 1745, Atlanta, Ga. (International Vegetable Oil Co., Subsidiary.)
Soya Processing Co., Wooster, Ohio
A. E. Staley Manufacturing Co., Decatur, Ill.
Standard Milling Co., 309 West Jackson Blvd., Chicago, Ill.
Stratton & Co., Concord, N. H.
Swift & Co. (Oil Mills), Box 327, Atlanta, Ga.
Swift & Co. Soybean Mills, Champaign, Ill.
C. H. Symmes & Co., Winchester, Mass.
Taft Bros., Uxbridge, Mass. (Registered by St. Albans Grain Co.)
Tioga Mills, Inc., Waverly, N. Y.
Toledo Soybean Products Co., 215 Pontiac St., Toledo, Ohio.
Tremaine Alfalfa Ranch & Milling Co., Inc., P. O. Box 270, Mesa, Ariz.
Jacob Trinley & Sons, Linfield, Penn.
Union Sales Corporation, Columbus, Ind. (Distributor for Union Starch & Refining Co.)
United Cooperative Farmers, Inc., Fitchburg, Mass.
United Farmers' Cooperative Creamery Association, Inc., Charlestown, Mass.
Unity Feeds, Inc., 177 Milk St., Boston, Mass.
Universal Grain Corporation, 2 Broadway, New York, N. Y.
Van Iderstine Co., Long Island City, N. Y.
Van Vechten Milling Corporation, Rochester, N. Y.
Arthur Ventura Grain Co., 7 Purchase St., Taunton, Mass.
Hiram Walker & Sons, Inc., Foot of Edmund St., Peoria, Ill.
C. P. Washburn Co., Middleboro, Mass.
Wayne County Grangers Feed Corporation, Clyde, N. Y.
H. K. Webster Co., Lawrence, Mass.
Western Condensing Co., Petaluma, Cal. (Registered for Golden Eagle Milling Co.)
Estate of M. G. Williams, Box 603, Taunton, Mass.
Wilmington Packing Co., New Boston St., Woburn, Mass.
Wilson & Co., Inc., 41st St. and Ashland Ave., Chicago, Ill.
Stanley Wood Grain Co., Taunton, Mass.
Worcester Grain & Coal Co., 322 Franklin St., Worcester, Mass.
Yantic Grain & Products Co., Norwich, Conn.

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Inspection of Commercial Fertilizers

By Philip H. Smith and J. W. Kuzmeski

This is the sixty-seventh report of the Massachusetts Fertilizer Control made in accordance with Chapter 94, Sections 250 to 261, inclusive, of Massachusetts General Laws 1920, as amended by Chapter 67, Acts of 1933.

Massachusetts State College
Amherst, Mass.

INSPECTION OF COMMERCIAL FERTILIZERS FOR THE SEASON OF 1940

By Philip H. Smith, Official Chemist, and
J. W. Kuzmeski, Senior Chemist[1]

CONTENTS

INTRODUCTION

This bulletin presents detailed analytical and statistical data pertaining to the work of the Massachusetts Fertilizer Control Service for the season of 1940.

The attention of the fertilizer manufacturers should be called to the seriously large number of brands listed which are deficient in one or more elements, the deficiencies in too many instances resulting in commercial shortages of over $1 per ton.

Three factors are considered here as the main probable causes of the increased percentage of deficient brands.

First, for some years past it has been the practice at this laboratory to make a composite of several samples of the same brand and to make one analysis of the composite. It was necessary to do this in order to make and report an analysis on each sample collected. In using this method deficiencies and overruns in individual samples were equalized in the composite; therefore fewer deficiencies and shortages were noted than might have been the case had each sample been analyzed individually. During 1940 we have made no composites, but have analyzed only single samples. We believe there is ample justification for doing this. The manufacturer makes his guarantee to *each* farmer, not to a group of farmers; therefore he is obligated to see that the fertilizer received by each farmer meets the guarantee. We can ascertain whether or not the manufacturer is fulfilling his obligation in this respect only by analyzing single samples which represent only one farmer's goods. By following this method we cannot analyze all of the samples collected. However, with a few exceptions, we have analyzed at least one sample of each brand registered. It was impossible to secure samples representing all brands registered. We believe that this method shows more clearly the degree of efficiency maintained by each manufacturer in meeting his guarantees to the individual farmer, and therefore better serves the purpose for which the Fertilizer Control was established.

[1] Assisted by H. Robert DeRose, Albert F. Spelman, Leo V. Crowley, Francis J. Farren, Chemists; James T. Howard, C. L. Whiting, L. A. Graves, Sampling Agents; George E. Taylor, Laboratory Assistant; Cora B. Grover, Clerk.

Second, the analysis of some fertilizers, notably those containing high percentages of plant food, shows conclusively either that these fertilizers had been improperly mixed or that segregation had occurred after mixing. In such cases the analysis shows one or two elements considerably above guarantee, while the third element is generally considerably below guarantee. In these instances the manufacturer has used sufficient quantities of all ingredients to meet his guarantee fully, but due to variations in the mixture, perhaps to some extent unavoidable, the analysis of some lots shows a large deficiency in one element with overruns in other elements. This reasoning cannot apply to those mixtures which by analysis are shown to be seriously deficient in two elements with only a slight overrun in the third element, or to those having deficiencies in all elements guaranteed. This brings us to the third factor.

During recent years the competition among all fertilizer manufacturers has become much keener, resulting in an increased incentive to gain business by making price concessions and offering other inducements to the buyer. Since this procedure inevitably leads to a reduced margin of profit, some manufacturers in calculating their mixture formulas may have been tempted or forced to figure their raw material costs a little more closely than is consistent with good fertilizer mixing practice.

MANUFACTURERS AND BRANDS

Registrations have been perfected in Massachusetts during 1940 by 98 firms, covering 491 brands of mixed fertilizer and unmixed fertilizing materials.

The following brands were not found on display by the sampling agent at any point in the state and therefore do not appear in the tables of analyses.

Brands of Fertilizer Registered but Not Sampled

American Agricultural Chemical Co.
AA 4–12–4 Fertilizer
AA 7–6–6 Fertilizer

Apothecaries Hall Co.
Liberty High Analysis Potato & General Crops 8–16–20
Liberty High Grade Corn 4–12–4
Liberty High Grade Fertilizer for Fruit 10–5–5
Liberty Tobacco Mixture 6–3–6
Liberty Tobacco Starter 4–10–0
Tankage (8.22–3–0)

Archer-Daniels-Midland Co.
41% Protein Soybean Oil Meal (6.5–0–0)

Armour Fertilizer Works
Armour's Big Crop Fertilizer 10–5–5
Armour's Fertilizer 4–8–8
Armour's Garden & Lawn Fertilizer 4–8–8
Cal-Nitro 20.5% (20.5–0–0)
Muriate of Potash 60% (0–0–60)
Ground Tankage (7.40–4–0)

Barrett Co.
Sulphate of Ammonia (20.56–0–0)

Consolidated Rendering Co.
Dry Ground Fish (9–5–0)
Nitrate of Potash (13–0–44)

Davison Chemical Corporation
Daveo Granulated Fertilizer 5–8–7 with Sulphate of Potash

Eastern States Farmers' Exchange
Eastern States Castor Pomace (5–0–0)

Foodndrink Fertilizer Co.
Foodndrink (13–0–0)

French Potash Co., Inc.
Muriate of Potash (0–0–50)

Glidden Co., Soya Products Division
Glidden 4 Hi New Process 44% Protein Soybean Oil Meal Diamond "G" Brand (7–0–0)

Hydroponic Chemical Co., Inc.
Hyponex 7–6–19

International Agricultural Corporation
International 10–6–4

Old Deerfield Fertilizer Co., Inc.
Old Deerfield 4–8–7, Potash other than Muriate
Old Deerfield 5–3–5 Complete Tobacco
Old Deerfield 5–10–5 Truckers Special
Cal-Nitro (20.5–0–0)
Linseed Meal 34% Protein (5.44–0–0)
Sulphate of Potash (0–0–48)

Potash Company of America
Muriate of Potash (0–0–60)

Rogers & Hubbard Co.
Red H Brand 4–12–4
Hubbard's Dry Ground Fish (9.46–5–0)

Soil Builders, Inc.
Colloidal Phosphate with Mineral Colloids (0–22–0)

Standard Wholesale Phosphate & Acid Works, Inc.
Standard 4–8–10

Sutton & Sons, Ltd.
Sutton's Simplex Fertiliser 5–5–2

Swift & Company Fertilizer Works
Swift's Red Steer 4–8–4
Swift's Special Golf Fertilizer 6–12–4
Swift's Special Golf Fertilizer 12–6–4

Tennessee Corporation
Soil-Prep 4–2–2

Drawing of Samples

Between April 1 and June 15, three sampling agents made a thorough canvass of the state: James T. Howard in Hampshire, Hampden, Franklin and Berkshire Counties; L. A. Graves in Norfolk, Bristol, Plymouth, Barnstable and Dukes Counties; and C. L. Whiting in Essex, Middlesex, Suffolk and Worcester Counties. They visited 157 towns, took 1,725 samples, representing 450 brands, from stock in the possession of 425 agents or owners, and called at 320 places where no samples were drawn because the agency had been discontinued, the stock was all sold out, or sufficient samples had already been taken of the brands found. They sampled 22,972 sacks, representing 13,264 tons of fertilizer. One ton was sampled to every four and nine-tenths tons sold in the state.

FERTILIZER TONNAGE

Tonnage of Mixed and Unmixed Fertilizers Sold in Massachusetts

	July 1, 1937, to July 1, 1938	July 1, 1938, to July 1, 1939	July 1, 1939, to July 1, 1940
Mixed fertilizers	45,339	41,616	43,736
Fertilizer chemicals and materials unmixed	22,360	20,800*	19,673†
Pulverized natural manures	1,476	1,558	1,589
Totals	69,175	63,974	64,998

* Does not include 876 tons of 45% superphosphate and 903 tons of 47% superphosphate distributed by the A.A.A.

† Does not include 2,305 tons of 47% superphosphate distributed by the A.A.A.

There were 1,024 tons more fertilizer sold in the state in 1940 than during the previous year. The tonnage of mixed fertilizer was 2,120 more, and that of the fertilizer chemicals and unmixed materials was 1,127 less than for 1939. Pulverized manures showed an increase of 31 tons. Of the total tonnage sold, 67.3 per cent was mixed fertilizer, 30.3 per cent was unmixed materials, and 2.4 per cent was dried and pulverized natural manures.

Plant Food Tonnage

	Nitrogen		Phosphoric Acid		Potash	
	1939	1940	1939	1940	1939	1940
Mixed fertilizers (*a*)	2,131	2,328	3,529	3,628	3,053	3,198
Fertilizer chemicals and materials unmixed	1,324	1,163	1,974*b*	1,883*c*	775	728
Pulverized natural manures	33	35	28	30	43	41
Totals	3,488	3,526	5,531	5,541	3,871	3,967

a Does not include plant food tonnage of fertilizer mixed for special orders.

b Does not include 825 tons of available phosphoric acid from 1,779 tons of superphosphate distributed by the Agricultural Adjustment Administration.

c Does not include 1,083 tons of available phosphoric acid from 2,305 tons of 47% superphosphate distributed by the A.A.A.

There were 13,034 tons of plant food sold, which is 144 tons more than was sold in 1939.

The tonnage tables present figures for one year, July 1, 1939, to July 1, 1940, for both mixed fertilizers and unmixed fertilizer materials. In case of the mixed fertilizers, the grade represents the plant food guarantee and is expressed in the order of nitrogen, available phosphoric acid, potash.

Of the 43,736 tons of mixed fertilizer sold, 73 per cent was furnished by 10 grades and 144 brands. High analysis grades totaled 4,100 tons and 24 brands, which is 877 tons more than in 1939. Although the total tonnage of mixed fertilizers shows an increase of 2,120 tons, or 4.9 per cent, the high analysis grades show an increase of 16.4 per cent. This indicates a continuing trend toward the manufacture of higher grade fertilizers.

Tonnage of Mixed Fertilizers.

Complete Fertilizers.

Grade.	Tonnage.	Brands.	Grade.	Tonnage.	Brands.
5-8-7	11,202	31	6-8-2	96	-
4-8-4	3,973	21	4-3-12	96	-
6-3-6	3,036	11	6-8-6	89	-
4-8-7	2,409	15	5-7-3	82	-
4-8-10	2,317	16	6-6-5	79	-
7-7-7	1,770	14	8-8-4	78	-
8-16-16	1,758	7	8-8-8	77	-
5-8-10	1,558	10	7-7-5	73	-
5-10-10	1,534	12	8-6-4	72	-
7-6-6	1,193	7	6-7-4	72	-
6-3-7	1,039	-	4-9-3	71	-
5-10-5	1,032	9	8-5-2	64	-
4-12-4	843	8	7-7-6	50	-
3-10-4	639	9	12-6-4	39	-
5-3-5	507	6	12-16-12	39	-
5-6-4	465	-	8-6-3	30	-
8-16-14	452	-	5-12-6	27	-
3-10-6	433	-	7-8-4	26	-
8-16-20	418	7	6-8-4	25	-
10-10-10	394	-	3-3-3	19	-
5-5-15	355	10	9-6-6	17	-
4-10-4	337	-	12-4-4	17	-
10-6-4	331	-	5-8-5	16	-
4-16-20	325	-	10-8-6	16	-
8-24-8	298	-	5-5-10	16	-
5-15-5	291	-	5-8-4	15	-
3-12-6	280	-	5-4-8	15	-
8-6-2	211	-	3-7-6	14	-
8-4-8	206	-	8-6-6	14	-
8-16-8	193	-	5-6-2	14	-
4-12-6	174	-	5-9-8	12	-
5-10-4	148	-	5-10-7	12	-
5-5-5	146	-	6-12-4	12	-
4-8-8	143	-	7-8-3	12	-
8-5-8	141	-	5-6-6	11	-
7-14-21	126	-	.08-.16-.10	10	-
10-5-5	120	-	4-16-4	10	-
7-5-3	118	-	Miscellaneous	84	14
6-12-12	97	-	Special Mixtures	1,085	-
			Totals	43,618	317

Superphosphate with Potash.			Ammoniated Superphosphate.		
0-20-20	117	1	4-10-0	1	2

In the following table are listed ten of the most popular grades of mixed fertilizer together with the tonnage of each sold in Massachusetts for the years 1939 and 1940.

1939.		1940.	
Grade.	Tonnage.	Grade.	Tonnage.
5–8–7	11,004	5–8–7	11,202
4–8–4	4,280	4–8–4	3,973
4–8–7	2,618	6–3–6	3,036
6–3–6	2,321	4–8–7	2,409
4–8–10	2,110	4–8–10	2,317
8–16–16	1,629	7–7–7	1,770
7–6–6	1,410	8–16–16	1,758
4–8–8	1,352	5–8–10	1,558
5–8–10	1,225	5–10–10	1,534
4–12–4	1,171	7–6–6	1,193

Tonnage of Unmixed Fertilizing Materials.

Material.	Tonnage.	Brands.	Material.	Tonnage.	Brands.
Superphosphate 16%	3,842	9	Wood ashes	65	–
Superphosphate 20%	3,346	10	Urea	63	–
Nitrate of soda	3,022	–	Linseed meal	60	–
Bone meal	1,656	23	Basic slag phosphate	53	–
Pulverized animal manures	1,589	26	Castor pomace	50	5
Cottonseed meal	1,298	–	Ammo-Phos	47	–
Milorganite	1,067	–	Phosphate rock	42	–
Muriate of potash 60%	897	8	Process tankage	35	–
Sulfate of ammonia	819	9	Precipitated bone	17	–
Soy bean meal	692	5	Sulfate of potash	15	–
Cyanamid	687	–	Dried blood	9	–
Muriate of potash 50%	368	7	Horn and hoof meal	9	–
Nitrate of soda-potash	324	–	Peruvian guano	9	–
Tankage	264	9	Agrinite	8	–
Peat	221	–	Menderth	7	–
Organo	149	–	Tobacco stem meal	6	–
Nitrate of potash	123	5	Fish Organo	5	–
Fish	116	7	Calcium nitrate	5	–
Cotton hull ashes	102	–	Foodndrink	1	–
Superphosphate 40%	87	–	Sulfate of potash-magnesia	1	–
Cal-Nitro	86	–			
			Totals	21,262	174

MIXED FERTILIZERS.

Deficiency Statistics for Mixed Fertilizers.

Manufacturer.	Number of Brands.		Number of Tests or Determinations.				
	Analyzed	With no Deficiencies	Totals	Not Exceeding ¼ Per Cent Below Guarantee	Between ¼ and ½ Per Cent Below Guarantee	Between ½ and ¾ Per Cent Below Guarantee	More than ¾ Per Cent Below Guarantee
Acme Guano Co.	10	1	30	4	3	2	1
Agro-Chem Laboratories, Inc.	1	1	3	0	0	0	0
American Agricultural Chemical Co.	37	7	101	32	7	5	0
Apothecaries Hall Co.	14	8	42	4	1	1	0
Armour Fertilizer Works	18	6	54	12	3	1	1
Ernest J. Bantle	1	1	3	0	0	0	0
F. A. Bartlett Tree Expert Co.	1	1	3	0	0	0	0
Belmont Gardens	1	1	3	0	0	0	0
Berkshire Chemical Co.	15	7	45	5	2	1	0
Joseph Breck & Sons Corp.	4	1	12	0	1	2	1
Clay & Son, Ltd.	1	1	3	0	0	0	0
Collins Seed Service Co.	4	2	12	1	1	0	0
Consolidated Rendering Co.	24	7	72	16	9	1	2
Davey Tree Expert Co.	1	1	3	0	0	0	0
Davison Chemical Corporation	2	0	6	1	0	0	1
Eastern States Farmers' Exchange	17	8	65	7	0	2	1
Ellis Associates, Inc.	1	1	3	0	0	0	0
Thomas W. Emerson Co.	5	4	15	0	0	0	1
Excell Laboratories	1	0	3	0	1	0	0
Fertilizer Sales Corporation	6	5	18	1	0	0	1
H. L. Frost & Higgins Co.	2	1	6	1	0	0	0
Goulard & Olena, Inc.	2	2	6	0	0	0	0
Thomas J. Grey Co.	1	1	3	0	0	0	0
Hartney-Amalia, Inc.	1	1	3	0	0	0	0
Henderson & Herndon Tree Co., Inc.	1	0	3	0	0	1	0
Allen Hersom Co.	2	0	6	2	1	0	0
A. H. Hoffman, Inc.	1	1	3	0	0	0	0
Hy-Trous Sales Company of New England	1	1	3	0	0	0	0
International Agricultural Corp.	19	2	62	12	6	4	6
Kem Plant Food Corporation	1	1	3	0	0	0	0
John D. Lyon	1	1	3	0	0	0	0
McClain Brothers Co.	1	0	3	0	1	0	0
Mechling Bros. Chemicals, Division of General Chemical Co.	1	1	3	0	0	0	0
Miller Chemical & Fertilizer Corp.	4	1	12	3	0	1	0
New England Toro Co.	3	2	9	0	1	0	0
New England Tree Expert Co., Inc.	1	0	3	1	0	0	1
Norfolk Humus Co.	1	1	3	0	0	0	0
Old Deerfield Fertilizer Co., Inc.	14	11	44	0	0	3	0
Olds & Whipple, Inc.	12	7	36	6	0	0	0
F. G. Phillips Co.	1	0	3	1	0	0	0
Plantabbs Corp.	1	1	3	0	0	0	0
Plantspur Products Co.	1	0	3	1	0	0	0
Ra-Pid-Gro Corporation	1	0	3	0	0	0	2
Rogers & Hubbard Co.	28	21	84	4	0	3	0
Scarborough Testing Gardens, Inc.	1	0	3	1	0	0	0
O. M. Scott & Sons Co.	1	1	3	0	0	0	0
M. L. Shoemaker Co., Division of Wilson & Co., Inc.	1	1	2	0	0	0	0
Standard Wholesale Phosphate & Acid Works, Inc.	5	2	15	3	1	0	0
Swift & Co. Fertilizer Works	5	0	15	4	1	0	0
F. Sylvester & Son	1	1	3	0	0	0	0
Synthetic Nitrogen Products Corp.	1	1	3	0	0	0	0
Tennessee Corp.	1	1	3	0	0	0	0
Universal Chemical Co.	1	0	3	0	1	0	0
Virginia-Carolina Chemical Corp.	1	1	3	0	0	0	0
C. P. Washburn Co.	4	1	12	4	0	0	0
Winslow Nurseries	1	0	3	0	0	0	1
Woodruff Fertilizer Works, Inc.	7	0	21	3	5	0	0
Totals	295	128	895	129	45	27	19

Serious Commercial Shortages in Mixed Fertilizers.

Amount of Shortage Per Ton.	Number of Samples
More than $5	3
Between $4 and $5	none
Between $3 and $4	none
Between $2 and $3	6
Between $1 and $2	21

Of the 295 brands analyzed, 128, or 43 percent, showed no deficiencies. Out of 895 plant food guarantees made, 75 percent were fully maintained.

The deficiency table shows the following statistics:

Deficiencies not exceeding ¼ of one percent, 129.
Deficiencies between ¼ and ½ of one percent, 45.
Deficiencies between ½ and ¾ of one percent, 27.
Deficiencies more than ¾ of one percent, 19.

Sixteen firms have registered five or more brands of mixed fertilizers. On the basis of composition found by analysis as well as of tonnage sold, the following table shows to what extent each manufacturer was successful in avoiding deficiencies in plant food guarantees in his mixtures. Seven of the sixteen firms have an average deficiency in one or more plant food elements. The average percentage of total plant food of three of these firms is below the minimum guaranteed. This is a very unsatisfactory showing. In order to have reasonable assurance that his mixtures will conform to the guaranteed analysis, the manufacturer should allow as a minimum an average overrun of one-tenth of one per cent for each element.

Average Deviation from Guaranteed Analysis

Manufacturer.	Average Percentage of Plant Food Above or Below the Minimum Guarantee.			
	Nitrogen	Available Phosphoric Acid	Potash	Total Plant Food
Acme Guano Co.	+ .17	+ .19	— .20	+ .16
American Agricultural Chemical Co.	+ .05	+ .05	+ .11	+ .21
Apothecaries Hall Co.	+ .19	+ .38	+ .42	+ .99
Armour Fertilizer Works	— .02	+ .10	+ .10	+ .18
Berkshire Chemical Co.	+ .16	+ .08	+ .37	+ .61
Consolidated Rendering Co.	— .11	— .29	+ .05	— .35
Eastern States Farmers' Exchange	+ .41	+ .26	+ .78	+1.45
Thomas W. Emerson Co.	+ .38	— .34	+ .60	+ .64
Fertilizer Sales Corp.	+1.24	+ .30	+ .13	+1.67
International Agricultural Corp.	— .13	+ .05	— .41	— .49
Old Deerfield Fertilizer Co., Inc.	+ .38	+1.06	+ .56	+2.00
Olds & Whipple, Inc.	+ .20	+ .38	+ .56	+1.14
Rogers & Hubbard Co.	+ .47	+ .51	+ .43	+1.41
Standard Wholesale Phosphate & Acid Works, Inc.	+ .13	+ .41	+ .19	+ .73
Swift & Company Fertilizer Works	+ .06	— .26	+ .08	— .12
Woodruff Fertilizer Works, Inc.	+ .15	— .22	+ .15	+ .08

Explanation of Tables of Analyses

Guarantee. The plant food guarantee or the grade of each fertilizer is made a part of the trade name under the heading "Name of Manufacturer and Brand," and is expressed as nitrogen, available phosphoric acid, and water soluble potash and in that order.

Commercial Shortages. Under the heading "Approximate commercial shortage per ton" is shown the commercial valuation of the deficiencies or tests found below the guarantee. No allowance is made for the value of overruns in other elements which are above guarantee. The manufacturer makes a definite guarantee regarding the minimum percentage of *each* element which each grade shall contain. If a farmer buys a 5–8–7 fertilizer he has every right to expect and insist that he shall receive a 5–8–7 grade and not a 4–8–10 grade, even though the latter may have an equal or higher commercial value. Figuratively speaking, plants think in terms of pounds of nitrogen, available phosphoric acid, potash, and other plant food elements, and not in terms of dollars and cents. As far as plant growth is concerned, an overrun of 30 or 40 pounds of potash in a ton of fertilizer does not compensate for a shortage of 15 or 20 pounds of nitrogen.

Deficiencies are emphasized by boldface type.

Mixtures Substantially Complying with the Guarantee. In addition to the analysis of those fertilizers which meet their guarantees in every respect, this table includes also those mixtures which have one or more elements below the guaranteed percentage but have a shortage of less than $1 per ton.

Inferior Nitrogen. The presence of inferior forms of organic nitrogen is indicated by footnotes.

Potash Forms. Tests for chlorine are made only on tobacco mixtures and on those fertilizers which carry a guarantee of potash in forms other than muriate. When the amount of chlorine present in any brand exceeds the tolerance allowed for that brand, this fact is indicated by a footnote.

Mixtures Showing a Commercial Shortage of $1 or More Per Ton.

Name of Manufacturer and Brand	Where Sampled	Approximate Commercial Shortage Per Ton	Nitrogen Found					Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found	Magnesium Oxide	
			In Ammoniacal Forms	In Nitrate Forms	Water Soluble Organic	Water Insoluble Organic	Total			Found	Guaranteed
Acme Guano Co.											
Acme 4-8-10 (*a*)	North Adams	$2.85	1.69	.67	1.39	.19	**3.94**	8.22	**6.77**	–	–
Acme 5-8-7 (*b*)	Palmer	1.27	3.00	.75	.85	.28	**4.88**	**7.83**	**6.10**	–	–
American Agricultural Chemical Co.											
AA Corn Favorite 3-10-4 (*cc*)	South Westport	1.06	1.92	.98	.24	.29	3.43	**9.12**	**3.83**	–	–
Double A Tobacco Fertilizer 5-3-5	Hadley	1.60	.27	.55	1.25	2.57	**4.64**	3.90	5.48*d*	–	–
Apothecaries Hall Co.											
Liberty Corn Fertilizer 3-12-6 (*e*)	South Deerfield	1.16	2.19	.74	.30	.68	3.91	**10.88**	6.69	–	–
Armour Fertilizer Works											
Armour's Big Crop Fertilizer 5-8-7 (*e*)	Fall River	1.20	3.44	.80	.23	.58	5.05	**7.57**	**6.08**	–	–
Armour's Big Crop Fertilizer 5-8-10	Brockton	1.12	3.20	.55	.30	.64	**4.69**	8.38	**9.67**	–	–
Joseph Breck & Sons Corporation											
Brexone Bulb Food 5-8-5	Boston	8.19	2.21	1.23	.05	.88	**4.37**	**1.84**	5.46	–	–
Brexone Bulb Food 5-8-5	Boston	7.28	2.32	1.14	.24	1.12	**4.82**	**1.52**	6.20	–	–
Collins Seed Service Co.											
Complete Grass Manure 6-8-2 (*e*)	Boston	1.66	1.75	1.45	.76	1.55	**5.51**	8.38	2.06	–	–
Consolidated Rendering Co.											
Competitive 8-16-16 (*e*)	Lowell	1.31	7.05	.84	.26	.09	8.24	**14.74**	16.83	–	–

Corenco 5-8-7 General Crop Manure	Fall River	1.25	2.78	.96	.95	.09	**4.78**	**7.58**	**6.77**	–	–
Corenco 5-8-10 Peerless Potato	Fall River	1.24	2.75	.95	.94	.07	**4.71**	**7.70**	**9.85**	–	–
Corenco 7-6-6 Complete Fruit & Top Dressing	Fall River	1.18	4.57	.63	1.30	.11	**6.61**	**5.89**	6.25	–	–
Eastern States Farmers' Exchange											
Eastern States 4-16-20 (*a*)	Taunton	1.27	2.96	1.08	.15	.24	4.43	**14.78**	22.38	2.69	1.50
Eastern States 7-14-21	North Cambridge	1.84	4.87	1.52	.43	.43	7.25	**12.23**	23.95	3.02	2.00
Eastern States 7-14-21	Taunton	1.16	5.06	1.76	.10	.49	7.41	**12.89**	23.68	2.98	2.00
Eastern States 7-14-21 (*e*)	Taunton	1.19	4.99	1.67	.10	.50	7.26	**12.86**	23.46	3.46	2.00
Eastern States 8-8-8 C & B—Cranberry & Blueberry (*a*)	Taunton	1.66	.75	9.31	.03	.20	10.29	**6.40**	8.10	–	–
Thomas W. Emerson Co.											
English Formula Lawn & Garden Dressing 5-7-3 (*e*)	Clinton	2.80	2.94	.01	.29	1.95	5.19	**4.31**	3.96	–	–
Fertilizer Sales Corporation											
Organo 5-8-10 (*e*)	Cambridge	2.66	1.34	.76	1.74	1.36*f*	5.20	**7.03**	**7.99**	–	–
Henderson & Herndon Tree Co., Inc.											
H & H Plant Food 5-5-10	Beverly	2.08	.16	1.76	.58	1.96	**4.46**	6.08	10.38	–	–
International Agricultural Corporation											
International 5-8-7	Dighton	1.21	3.07	.84	.63	.25	**4.79**	8.48	**6.22**	–	
International 5-8-10	Fall River	1.30	3.37	.79	.68	.10	**4.94**	**7.48**	**9.27**	–	–
International 8-6-2	Needham	2.55	3.27	1.03	.86	2.07	**7.23**	6.70	2.40	–	–
International 8-16-8	North Dighton	1.15	7.15	.76	.03	.06	8.00	**14.89**	8.87	–	–
International 8-16-14	Ware	1.96	6.17	.81	.49	.15	**7.62**	**14.99**	14.33	2.82	2.00

a Two other samples complied with the guarantee.
b Four other samples complied with the guarantee.
c Three other samples complied with the guarantee.
d In forms other than muriate.
e One other sample complied with the guarantee.
f The water insoluble nitrogen was of inferior quality.

Mixtures Showing a Commercial Shortage of $1 or More Per Ton—Concluded

Name of Manufacturer and Brand	Where Sampled	Approximate Commercial Shortage Per Ton	Nitrogen Found					Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found	Magnesium Oxide	
			In Ammoniacal Forms	In Nitrate Forms	Water Soluble Organic	Water Insoluble Organic	Total			Found	Guaranteed
McClain Brothers Co.											
Veg-E-Tonic 21–13–10	West Newton	1.50	11.69	1.01	7.76	.07	**20.53**	14.25	12.25	–	–
Ra-Pid-Gro Corporation											
Ra-Pid-Gro 23–27–17	New Bedford	9.64	4.31	4.51	12.80	.03	**21.65**	**22.72**	18.33	–	–
Winslow Nurseries											
Green Valley Plant Food 5–10–7	Beverly	2.89	1.55	1.04	.73	.79	**4.11**	10.05	7.42	–	–

Mixtures Substantially Complying with Guarantees.

Name of Manufacturer and Brand	Nitrogen Found					Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found
	In Ammoniacal Forms	In Nitrate Forms	Water Soluble Organic	Water Insoluble Organic	Total		
Acme Guano Co.							
Acme 3-10-4	1.77	.09	1.11	.29	3.26	10.49	4.57
Acme 3-10-4	2.50	–	.84	.29	3.63	10.08	4.65
Acme 4-8-4	3.00	.11	.76	.24	4.11	8.19	3.89
Acme 4-8-4	2.90	.31	.78	.27	4.26	8.51	4.01
Acme 4-8-4	2.84	.15	.83	.24	4.06	8.02	4.04
Acme 4-8-7	2.95	.24	.75	.24	4.18	8.14	6.45
Acme 4-8-10	4.14	.17	.03	.26	4.60	8.58	9.23
Acme 4-8-10 (*a*)	3.32	.05	.71	.31	4.39	7.82	9.97
Acme 5-5-15	.18	.03	3.65	1.09	4.95	5.50	16.32*b*
Acme 5-8-7	3.19	.90	.83	.25	5.17	8.19	5.98
Acme 5-8-7	3.24	.78	.96	.28	5.26	8.33	6.37
Acme 5-8-7	3.14	.85	.88	.28	5.15	8.15	5.92
Acme 5-8-7 (*a*)	3.06	1.09	.88	.24	5.27	7.72	8.18
Acme 5-8-10	2.65	–	3.50	.22	6.37	8.19	9.15
Acme 5-8-10	2.93	.18	2.12	.24	5.47	8.36	9.76
Acme 7-3-7	.74	.17	4.09	1.79	6.79	4.09	8.88*b*
Acme 7-3-7	.73	.26	3.80	1.91	6.70	3.56	8.17*b*
Acme 7-6-6	3.35	1.89	1.03	.48	6.75	6.78	6.03
Acme 7-7-7	4.68	1.82	.10	.38	6.98	7.21	6.79

a One other sample was deficient: see analysis in table of "Mixtures showing a commercial shortage of $1 or more per ton."
b In forms other than muriate.

Mixtures Substantially Complying with Guarantees — Continued.

Name of Manufacturer and Brand	Nitrogen Found					Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found
	In Ammoniacal Forms	In Nitrate Forms	Water Soluble Organic	Water Insoluble Organic	Total		
Agro-Chem Laboratories, Inc.							
Vitamone Concentrate 8-10-8	3.43	.18	5.37	–	8.98	10.35	8.94
American Agricultural Chemical Co.							
AA 3-8-4 Fertilizer	1.99	.92	.18	.31	3.40	9.34	3.89
AA 8-16-16 Fertilizer	6.90	.67	.43	.04	8.04	15.87	16.39
AA 8-16-16 Fertilizer	6.71	.94	.33	.05	8.03	15.48	16.53
AA 8-16-16 Fertilizer	6.94	.65	.33	.04	7.96	16.05	16.20
AA Corn Favorite 3-10-4	2.06	.73	.25	.29	3.33	9.25	4.00
AA Corn Favorite 3-10-4	1.94	.71	.21	.26	3.12	9.44	4.14
AA Corn Favorite 3-10-4 (*a*)	1.91	.58	.42	.29	3.20	9.54	4.26
AA Cranberry Fertilizer 5-6-4	3.73	.92	.14	.38	5.17	6.29	4.22
AA Cranberry Fertilizer 5-6-4	3.83	.85	.15	.33	5.16	5.92	4.19
AA Double Strength Fertilizer 8-16-14	7.13	.83	.25	.05	8.26	16.55	14.17
AA Market Garden Fertilizer 4-8-4	2.77	.58	.29	.38	4.02	7.97	4.43
AA Market Garden Fertilizer 4-8-4	2.85	.69	.20	.46	4.20	7.90	4.58
AA Peerless Fertilizer 4-8-7	2.77	.52	.30	.41	4.00	8.34	7.09
AA Potato Grower 5-8-10	3.77	.50	.38	.34	4.99	7.44	9.88
AA Potato Grower 5-8-10	3.69	.78	.12	.47	5.06	7.85	10.03
AA Potato & Root Crop Fertilizer 4-8-10	2.87	.62	.34	.34	4.17	8.31	10.15
AA Potato & Root Crop Fertilizer 4-8-10	2.80	.80	.15	.40	4.15	7.60	10.58
AA Potato & Root Crop Fertilizer 4-8-10	2.71	.49	.39	.44	4.03	7.93	10.31
AA Potato & Vegetable Fertilizer 5-8-7	3.74	.68	.19	.36	4.97	8.43	7.26
AA Potato & Vegetable Fertilizer 5-8-7	3.68	.74	.24	.44	5.10	8.12	7.22

AA Tobacco Starter 5-5-15	.13	2.75	.25	1.76	4.89	4.91	16.15*b*
AA Top Dresser 7-7-7	5.93	.52	.25	.40	7.10	7.29	7.10
Agrico for Aroostook with 10% Potash 5-8-10	3.60	.69	.28	.42	4.99	8.75	9.75
Agrico for Corn 3-10-6	1.88	.56	.31	.29	3.04	9.39	5.96
Agrico for Corn 4-12-6	2.84	.65	.42	.21	4.12	11.50	6.07
Agrico Country Club Fertilizer 6-8-2	3.27	.23	.58	1.81	5.89	8.36	2.57
Agrico Country Club Fertilizer 8-6-2	3.64	.60	.73	2.83	7.80	6.33	2.13
Agrico Country Club Fertilizer 8-6-4	6.57	.12	.28	.69	7.96	6.25	4.17
Agrico for Fruit 8-8-4	6.39	.93	.74	.09	8.15	7.96	3.87
Agrico for Gardens 4-10-4	3.36		.16	.85	4.37	9.89	4.86
Agrico for Lawns, Trees & Shrubs 7-7-5	5.03	.56	.41	1.14	7.14	6.76	5.70
Agrico for New England 4-8-10	2.72	.73	.24	.36	4.05	7.90	10.15
Agrico for Onions 5-10-5	3.13	.94	.29	.47	5.13	9.62	4.96
Agrico for Potatoes, Double Strength 8-16-14	7.00	.78	.29	.04	8.11	16.36	14.08
Agrico for Potatoes, Double Strength 8-16-20	7.14	.64	.18	.02	7.98	15.93	21.06
Agrico for Potatoes & Vegetables 5-8-7	3.62	.92	.11	.30	4.95	7.79	6.99
Agrico for Seeding Down 4-16-20	2.95	.64	.25	.09	3.93	15.87	19.31
Agrico for Tobacco 6-3-6	.23	.71	1.55	3.58	6.07	3.57	6.17*b*
Agrico for Top Dressing 7-7-7	6.03	.69	.07	.36	7.15	6.87	7.13
Bowker All Round Fertilizer 3-10-4	1.95	.65	.30	.26	3.16	9.49	3.94
Bowker-Stockbridge Early Crop Manure 5-8-7	3.70	.69	.30	.36	5.05	7.87	7.04
Bowker's Stockbridge Potato & Vegetable Manure 4-8-10 (old stock)	3.02	.70	.24	.33	4.29	7.88	10.42
Bradley Blood Bone & Potash Brand 5-8-7	3.72	.67	.24	.42	5.02	7.69	7.29

a One other sample was deficient; see analysis in table of "Mixtures showing a commercial shortage of $1 or more per ton."
b In forms other than muriate.

Mixtures Substantially Complying with Guarantees — Continued.

Name of Manufacturer and Brand	Nitrogen Found					Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found
	In Ammoniacal Forms	In Nitrate Forms	Water Soluble Organic	Water Insoluble Organic	Total		
American Agricultural Chemical Co.—Concluded							
Bradley XL Fertilizer 3-10-4	2.07	.58	.26	.32	3.23	9.29	4.27
Co-Op 5-8-7 Fertilizer	3.68	.63	.24	.34	4.89	7.81	7.14
National Pine Tree Brand 4-8-4	2.62	.60	.38	.41	4.01	7.51	4.21
National Pine Tree Brand 4-8-4	2.68	.81	.18	.37	4.04	7.82	4.36
Sanderson's Formula B 4-8-7	2.64	.32	.56	.37	3.89	8.68	6.89
Apothecaries Hall Co.							
Liberty Corn Fertilizer 3-12-6 (*a*)	1.47	.39	.84	.65	3.35	12.26	7.23
Liberty Fish Bone Potash 3-10-4 (1939 stock)	1.08	1.07	.52	.40	3.07	9.82	4.42
Liberty Green-Gro 6-5-3	1.61	.76	1.04	2.65	6.06	6.18	5.22
Liberty High Grade Market Gardeners 5-8-7	3.60	.69	.11	.75	5.15	8.37	7.16
Liberty High Grade Market Gardeners (Potash as Sulphate) 5-8-7	2.56	1.31	.27	1.09	5.23	8.50	7.87*b*
Liberty High Grade Vegetable 5-10-10	3.09	1.25	.23	.80	5.37	9.80	10.59
Liberty Market Gardeners Special 4-8-4	2.56	.90	.31	.55	4.32	8.15	4.54
Liberty Potato & General Crops 4-8-10	2.58	.94	.13	.57	4.22	8.57	10.24
Liberty Potato & Market Gardeners (Potash as Muriate) 4-8-7	2.62	.97	.18	.43	4.20	8.29	6.98
Liberty Special Fertilizer for Fruit & Grass 7-7-7	5.49	.76	.09	.65	6.99	7.06	7.07
Liberty Tobacco Mixture (with Cotton Hull Ashes) 6-3-6	.24	.47	2.38	3.07	6.16	4.05	6.90*b*

Liberty Tobacco Mixture 6–3–7	.17	.58	1.85	3.68	6.28	4.10	9.47*b*
Liberty Top Dresser for Grass & Grain 8–8–8	6.21	1.13	.13	.64	8.11	8.30	8.43
Liberty Tree & Shrub Food 10–8–8	9.33	.40	.28	1.33	11.34	7.93	9.65
Liberty Truck Garden & Onion 5–10–5	3.05	1.11	.57	.34	5.07	9.35	5.24
Armour Fertilizer Works							
Armour's Big Crop Fertilizer 3–12–6	2.15	.33	.22	.42	3.12	12.01	6.05
Armour's Big Crop Fertilizer 4–8–4	2.72	.52	.14	.51	3.89	7.76	4.08
Armour's Big Crop Fertilizer 4–8–7	2.57	.34	.39	.60	3.90	8.35	7.20
Armour's Big Crop Fertilizer 4–8–10	2.47	.53	.32	.58	3.90	7.88	9.75
Armour's Big Crop Fertilizer 4–16–4	3.50	.45	.08	.17	4.20	15.77	4.31
Armour's Big Crop Tobacco Special 5–3–5	.16	1.09	1.33	2.33	4.91	3.39	5.41*b*
Armour's Big Crop Tobacco Special 5–3–5	.48	1.22	.87	2.29	4.86	3.46	5.12*b*
Armour's Big Crop Tobacco Starter 5–5–15	.39	1.74	1.99	1.02	5.14	5.49	15.53*b*
Armour's Big Crop Fertilizer 5–8–7 (*a*)	3.35	.68	.34	.65	5.02	8.00	6.72
Armour's Big Crop Fertilizer 5–10–5	3.79	.58	.15	.50	5.02	10.08	5.21
Armour's Big Crop Fertilizer 5–10–10	3.51	.59	.32	.62	5.04	10.52	9.04
Armour's Big Crop Tobacco Special 6–3–6	.18	1.26	1.52	2.86	5.82	3.62	7.50*b*
Armour's Big Crop Fertilizer 7–7–7	5.65	.65	.25	.53	7.08	6.95	7.07
Armour's Big Crop Orchard and Grape Fertilizer 7–7–7	5.24	.95	.27	.43	6.89	7.10	7.30
Armour's Big Crop Fertilizer 8–16–20	6.78	.84	.17	.16	7.95	16.78	20.26
Armour's Special Putting Green Mixture 8–5–2	3.83	.90	.44	3.01	8.18	5.19	2.27
Armour's Fertilizer 8–16–16	7.01	.82	.11	.19	8.13	16.47	16.04
Armour's Special Tree Food Mixture 10–8–6	8.61	.60	.48	.66	10.38	8.62	6.04

a One other sample was deficient: see analysis in table of "Mixtures showing a commercial shortage of $1 or more per ton."
b In forms other than muriate.

Mixtures Substantially Complying with Guarantees — Continued.

Name of Manufacturer and Brand	Nitrogen Found					Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found
	In Ammoniacal Forms	In Nitrate Forms	Water Soluble Organic	Water Insoluble Organic	Total		
Ernest J. Bantle							
Bantle's Special Tobacco Fertilizer 6–3–7	.04	1.56	1.70	3.10	6.40	4.12	7.82*b*
F. A. Bartlett Tree Expert Co.							
Bartlett Green Tree Food 6–7–4	5.63	–	.24	.94	6.81	7.87	4.90
Belmont Gardens							
Gardenia Fertilizer (Belgard) 6–15–4	4.99	.22	.30	.81	6.32	17.16	4.96
Berkshire Chemical Co.							
Berkshire Fertilizer 4–8–4	2.93	.05	.91	.26	4.15	8.22	4.53
Berkshire Fertilizer 4–8–7	2.72	.07	1.05	.22	4.06	7.69	7.18
Berkshire Fertilizer 4–8–10	3.12	–	.85	.19	4.16	8.01	10.08
Berkshire Fertilizer 4–10–4	2.98	.08	1.00	.29	4.35	10.11	4.32
Berkshire Fertilizer 4–12–4	2.84	.16	1.00	.29	4.29	12.38	3.86
Berkshire Fertilizer 5–3–5	.13	.62	1.09	3.07	4.91	3.09	5.13*b*
Berkshire Fertilizer 5–5–15	.02	2.37	.83	1.97	5.19	5.33	14.69*b*
Berkshire Fertilizer 5–8–7	3.70	.17	1.11	.22	5.20	8.07	7.10
Berkshire Fertilizer 5–8–10	3.85	.11	.92	.28	5.16	8.01	9.48
Berkshire Fertilizer 5–10–5	3.82	.15	1.06	.23	5.26	9.76	5.29
Berkshire Fertilizer 5–10–10	4.08	.11	1.27	.21	5.67	10.25	11.25
Berkshire Fertilizer 6–3–6	.07	.30	1.91	3.71	5.99	3.30	7.35*b*

Berkshire Fertilizer Grass Special 6–6–5	4.71	.28	.96	.21	6.16	6.09	5.69
Berkshire Fertilizer 7–7–7	6.23	–	1.05	.19	7.47	6.91	7.66
Berkshire Golf Green Fertilizer 8–5–2	2.27	.24	1.96	3.56	8.03	6.26	2.44
Joseph Breck & Sons Corporation							
Breck's "Home-Garden" Fertilizer 5–10–10	1.51	1.40	.64	1.65	5.20	9.33	10.29
Brexone Lawn and Flower Food 5–10–4	1.89	1.39	.54	1.19	5.01	10.01	4.20
Brexone Rose Food 4–12–4	1.36	1.11	.57	1.02	4.06	11.48	4.44
Clay & Son, Ltd.							
Clay's Fertilizer 5–9–2	2.43	.03	.18	2.73	5.37	9.67	2.70
Collins Seed Service Co.							
Casta-Poma Grass Manure 5–6–2	2.06	1.31	.90	1.58	5.85	7.84	2.50
Complete Grass Manure 6–8–2 (*a*)	2.01	1.69	.65	1.47	5.82	8.04	2.32
General Purpose Manure 4–8–4	2.10	.42	.64	.93	4.09	8.07	4.23
Ver-Best P. G. Manure 7–8–3	2.68	1.43	.77	1.99	6.87	8.08	3.26
Consolidated Rendering Co.							
Competitive 8–16–8	7.11	.86	.10	.11	8.18	15.60	9.28
Competitive 8–16–16 (*a*)	7.23	.78	.11	.12	8.24	15.39	16.78
Corenco 2–8–10 Potato & Oat Special (old stock)	.13	.67	.65	.61	2.06	7.92	10.06
Corenco 3–10–4 Animal Brand	1.04	.72	1.08	.12	2.96	9.70	4.14
Corenco 4–8–4 Corn & Vegetable	2.05	1.08	1.01	.12	4.26	7.53	3.97
Corenco 4–8–7 Market Garden	2.19	.92	.91	.14	4.16	7.61	6.82
Corenco 4–8–10 Potato Grower	1.92	.80	1.02	.08	3.82	8.00	9.86
Corenco 4–12–4 Complete Manure	2.08	1.13	.86	.14	4.21	12.00	4.49

a One other sample was deficient: see analysis in table of "Mixtures showing a commercial shortage of $1 or more per ton."
b In forms other than muriate.

Mixtures Substantially Complying with Guarantees — Continued.

Name of Manufacturer and Brand	Nitrogen Found					Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found	Magnesium Oxide	
	In Ammoniacal Forms	In Nitrate Forms	Water Soluble Organic	Water Insoluble Organic	Total			Found	Guaranteed
Consolidated Rendering Co.—Concluded									
Corenco 5–5–5 Lawn & Shrub	1.01	.73	1.49	1.80	5.03	5.61	5.21	–	–
Corenco 5–5–15 Tobacco Starter	.07	1.36	1.67	2.35	5.45	5.41	16.96*b*	–	–
Corenco 5–8–7 Made with Water Soluble Magnesium	2.97	1.20	.97	.12	5.26	7.69	6.85	1.00	1.00
Corenco 5–9–8	2.93	1.01	.60	.41	4.95	8.74	7.69	–	–
Corenco 5–9–8	2.88	.79	.80	.47	4.94	8.92	8.36	–	–
Corenco 5–10–5 Super Truck	3.12	.81	1.16	.16	5.25	9.25	5.33	–	–
Corenco 5–10–10	2.96	.70	1.26	.10	5.02	10.04	10.09	–	–
Corenco 6–3–6 Special Tobacco Grower	.35	.69	2.12	2.65	5.81	3.67	7.71*b*	–	–
Corenco 6–3–6 Special Tobacco Grower with Cotton Hull Ashes	.20	.92	1.94	2.67	5.73	3.53	7.36*b*	–	–
Corenco 6–3–6 Special Tobacco Grower with Cotton Hull Ashes	.38	1.09	1.91	2.75	6.13	3.83	6.82*b*	–	–
Corenco 7–6–4	4.86	.96	1.17	.12	7.11	6.09	6.09	–	–
Corenco 8–6–4 Top Dressing	5.22	.98	1.00	.56	7.76	6.02	4.80	–	–
Corenco 8–16–14 Two in One	5.98	1.08	.98	.21	8.25	15.49	14.63	–	–
Corenco 10–6–4	8.28	1.00	.71	.10	10.09	6.03	4.45	–	–
5–8–4 Gracol Garden	1.19	.87	.53	3.18	5.77	8.75	4.93	–	–
New England 8–6–2 Putting Green Special	5.16	.10	1.03	1.50	7.79	7.16	2.32	–	–

Davey Tree Expert Co.									
Davey Tree Food 12–4–4	10.12	.67	.35	1.14	12.28	4.13	4.18	–	–
Davison Chemical Corporation									
Davco Granulated Fertilizer 5–8–7	4.98	–	.30	.09	5.37	7.77	7.82	–	–
Davco Granulated Fertilizer 6–6–5	6.01	–	.07	.11	6.19	5.13	5.42	–	–
Eastern States Farmers' Exchange									
Eastern States 0–20–20	–	–	–	–	–	20.49	19.99	–	–
Eastern States 4–16–20	3.12	1.00	.11	.16	4.39	16.01	20.79	2.91	1.50
Eastern States 4–16–20 (*a*)	3.07	.75	.39	.23	4.44	15.59	20.52	2.52	1.50
Eastern States 5–5–15 Tobacco	.02	2.26	.44	2.81	5.53	6.07	17.35*b*	4.10	2.00
Eastern States 5–10–5	3.80	1.09	.36	.28	5.53	10.09	5.58	3.58	2.00
Eastern States 5–10–5	3.80	1.05	.12	.37	5.34	9.68	5.54	3.62	2.00
Eastern States 5–10–10	4.00	1.33	.15	.19	5.67	10.00	10.76	2.67	1.50
Eastern States 5–10–10	3.95	1.40	.15	.20	5.70	10.05	10.53	2.56	1.50
Eastern States 5–10–10	3.98	1.42	.13	.21	5.74	9.86	10.92	3.01	1.50
Eastern States 5–15–5	3.52	.01	1.39	.21	5.13	15.03	5.40	1.98	1.00
Eastern States 5–15–5	3.65	.20	1.31	.21	5.37	15.07	5.36	1.33	1.00
Eastern States 7–7–7	5.08	1.75	.30	.30	7.43	7.08	7.84	4.26	3.00
Eastern States 7–7–7	5.12	1.71	.20	.31	7.34	7.22	7.45	4.09	3.00
Eastern States 7–14–21 (*c*)	4.65	1.83	.15	.61	7.24	14.41	21.52	3.35	2.00
Eastern States 8–4–8 Tobacco	.29	.85	3.74	3.20	8.08	5.11	8.24*b*	3.36	2.50
Eastern States 8–8–8 C & B—Cranberry & Blueberry	.41	7.22	.09	.21	7.93	10.17	10.49	–	–
Eastern States 8–8–8 C & B—Cranberry & Blueberry (*a*)	.79	8.49	.16	.14	9.58	8.93	9.32	–	–
Eastern States 8–16–8	5.84	2.11	.15	.26	8.36	15.50	9.24	3.33	2.00
Eastern States 8–16–8	5.89	2.02	.15	.26	8.32	15.13	9.04	3.52	2.00
Eastern States 8–16–8	5.78	1.89	.12	.26	8.05	15.66	8.89	3.28	2.00

a One other sample was deficient: see analysis in table of "Mixtures showing a commercial shortage of $1 or more per ton."
b In forms other than muriate.
c Three other samples were deficient: see analyses in tables of "Mixtures showing a commercial shortage of $1 or more per ton."

Mixtures Substantially Complying with Guarantees — Continued.

Name of Manufacturer and Brand	Nitrogen Found					Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found	Magnesium Oxide	
	In Ammoniacal Forms	In Nitrate Forms	Water Soluble Organic	Water Insoluble Organic	Total			Found	Guaranteed
Eastern States Farmers' Exchange—Concluded									
Eastern States 8-16-16	5.82	1.98	.16	.25	8.21	15.66	17.28	2.63	2.00
Eastern States 8-16-16	5.86	1.85	.41	.23	8.35	17.13	16.32	3.01	2.00
Eastern States 8-16-16 LCS—Low Chlorine Special	5.87	1.59	.42	.26	8.14	15.85	16.61*b*	2.63	2.00
Eastern States 8-16-16 WSM—Water-Soluble Magnesium	6.00	1.44	.80	.29	8.53	15.78	16.84	1.84	2.00
Eastern States 8-24-8	6.45	.09	1.48	.38	8.40	24.05	9.18	2.35	1.00
Eastern States 8-24-8	6.27	.02	1.81	.35	8.45	23.77	9.38	2.19	1.00
Eastern States 10-5-5	7.03	2.96	.34	.28	10.61	5.30	5.58	4.53	3.00
Eastern States 10-5-5	6.83	3.22	.17	.28	10.50	5.29	5.52	4.63	3.00
Eastern States 10-10-10	7.31	2.25	.46	.30	10.32	10.60	10.73	3.60	2.50
Ellis Associates, Inc.									
Plantet 8-6-10	1.16	7.17	.05	.02	8.40	6.60	10.59	–	–
Thomas W. Emerson Co.									
Emseco 4-8-4	3.29	.07	.79	.39	4.54	8.58	4.35	–	–
Emseco 4-8-10	3.15	.03	1.07	.34	4.59	8.02	10.19	–	–
Emseco 5-8-7	4.00	.30	.78	.28	5.36	8.13	7.51	–	–
Emseco 7-7-7	6.82	.08	.39	.28	7.57	7.36	7.68	–	–
English Formula Lawn & Garden Dressing 5-7-3 (*a*)	2.91	.02	.30	2.06	5.29	7.05	3.49	–	–

Excell Laboratories									
New Plant Life 2–2–2	1.35	1.31	.17	.03	2.86	1.62	2.85	–	–
Fertilizer Sales Corporation									
Organo 3–10–6	1.39	.62	.96	.98	3.95	10.32	6.55	–	–
Organo 4–8–4	1.61	.11	1.42	1.97	5.11	8.33	5.03	–	–
Organo 4–12–4	2.42	.18	.75	2.02	5.37	12.27	4.00	–	–
Organo 5–8–7	1.73	.66	2.57	1.13	6.09	8.48	7.36	–	–
Organo 5–8–10 (*a*)	1.67	.81	2.24	1.05	5.77	8.59	9.36	–	–
Organo 8–6–2	3.38	.18	4.30	1.21	9.07	6.39	2.43	–	–
H. L. Frost & Higgins Co.									
F & H 8–6–3 Evergreen & Lawn Food	1.71	.08	2.32	3.93	8.04	6.13	3.60	–	–
F & H 8–6–6 Tree Food	1.86	.02	2.35	3.73	7.96	6.52	6.19	–	–
Goulard & Olena, Inc.									
G & O Plant Food 11–15–20 old stock	8.87	1.39	.73	.13	11.12	14.10	23.05	–	–
G & O Lawn-Garden & Flower Fertilizer 5–8–5	4.14	–	.36	.88	5.38	9.28	6.05	–	–
Sears Lawn & Garden Grower 5–8–7	4.58	.05	.21	.28	5.12	8.35	7.93	–	–
Thomas J. Grey Co.									
Grey's 9–6–6 Plant Food	7.60	.72	.41	.39	9.12	6.09	6.39	–	–
Hartney-Amalia, Inc.									
Vitafood 7–7–6	2.65	.69	2.01	1.40	6.75	8.15	6.15	–	–
Vitafood 7–7–6	3.90	1.11	1.24	1.57	7.82	6.62	7.43	–	–

a One other sample was deficient: see analysis in table of "Mixtures showing a commercial shortage of $1 or more per ton."
b In forms other than muriate.

Mixtures Substantially Complying with Guarantees — Continued.

Name of Manufacturer and Brand	Nitrogen Found					Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found	Magnesium Oxide	
	In Ammoniacal Forms	In Nitrate Forms	Water Soluble Organic	Water Insoluble Organic	Total			Found	Guaranteed
Allen Hersom Co.									
Neverfail 4-8-4	2.86	.87	.99	.13	4.85	8.19	5.93	–	–
Neverfail 4-8-4	1.91	1.06	.94	.10	4.01	7.20	4.40	–	–
Neverfail 5-8-7	2.83	1.10	.93	.09	4.95	7.87	7.06	–	–
A. H. Hoffman, Inc.									
Hoffman's Plant Food 5-8-6	1.91	.86	.44	2.18	5.39	10.14	6.31	–	–
Hy-Trous Sales Company of New England									
Hy-Trous Scientific Plant Food 4-8-4	.01	4.19	.03	–	4.23	8.60	4.09	–	–
International Agricultural Corporation									
International 3-10-4	1.98	.48	.52	.23	3.21	10.50	4.21	–	–
International 4-8-4	2.35	.61	.67	.19	3.82	7.74	3.77	–	–
International 4-8-7	2.53	.56	.85	.19	4.13	8.16	6.44	–	–
International 4-8-10	2.48	.63	.59	.17	3.87	7.90	9.61	–	–
International 5-10-10	3.80	.76	.75	.10	5.41	10.20	9.18	–	–
International 5-12-6	3.25	.68	1.14	.12	5.19	11.80	5.99	–	–
International 6-6-5 Growers Cranberry Fertilizer	.27	5.67	.18	.17	6.29	6.46	5.23	–	–
International 6-12-12	2.75	1.96	.60	.79	6.10	12.19	11.22	2.43	2.00
International 7-6-6	5.00	.79	.50	.49	6.78	6.46	5.90	–	–

International 8–16–16	6.51	.79	.63	09	8.02	15.62	15.50	2.41	2 00
International Caribee Green & Fairway 7–5–3	1.65	2 45	.83	1.93	6 86	5.03	3.08	–	–
International Caribee 7–12–10	2 01	2.29	.96	1 74	7.00	11.60	9.64	2.40	2.00
International Caribee Market Garden 5–10–10	1.65	1 36	.86	1 44	5.31	9 56	10.35	2.66	2.00
International Caribee Market Garden 5–10–10	1 65	1 17	.82	1 27	4.91	9.98	11.65	2.85	2.00
International Caribee Genuine Peruvian Guano 12.5–10.5–2.25	–	–	–	–	13.85	11.95	2.78	–	–
Kem Plant Food Corporation									
Kem Liquid Plant Food .08–.16–.10	–		–	–	.09	.18	.11	–	–
John D. Lyon									
Old New England Lawn Fertilizer 5–7–3	1 44	31	3 11	1 29	6 15	7 06	3 01	–	–
Mechling Bros. Chemicals, Division of General Chemical Co.									
Veget-Aid 5–10–4	4.40	.49	.54	35	5 78	11 01	5 24	–	–
Miller Chemical & Fertilizer Corporation									
Rich Yield 4–8–4	2 39	02	1 46	21	4 08	7 36	4.07	–	–
Rich Yield 4–8–10	3 26	–	.57	32	4 15	7 83	9.99	–	–
Rich Yield 5–8–7	2 92	11	1 84	21	5 08	8.24	6.78	–	–
Rich Yield 6–8–2 Special Fairway (old stock)	4 00	–	51	1 59	6.10	8.32	3.01	–	–
Rich Yield 7–7–7	4 38	67	2 09	.16	7.30	7.05	7 70	–	–
New England Toro Co.									
Netco Fertilizer 5–8–7	2 21	1 01	24	1 77	5.23	7 53	8.13	–	–
Netco Fertilizer 7–8–4	3 03	1 48	35	2 25	7 11	8 59	4 52	–	–
Netco Greens Formula 8–6–2	5 09	.30	.51	2 12	8 02	6.33	2.37	–	–

Mixtures Substantially Complying with Guarantees—Continued.

Name of Manufacturer and Brand	Nitrogen Found					Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found	Magnesium Oxide	
	In Ammoniacal Forms	In Nitrate Forms	Water Soluble Organic	Water Insoluble Organic	Total			Found	Guaranteed
New England Tree Expert Co., Inc.									
New-Life (Tree Food) 10–8–6	8.33	.92	.85	.27	10.37	7.76	5.17	–	–
Norfolk Humus Co.									
Tiz 2–2–1	1.20	.09	.89	1.07	3.25	2.84	1.10	–	–
Old Deerfield Fertilizer Co., Inc.									
Old Deerfield Corn & Seeding 3–12–6	1.96	.03	1.35	.57	3.91	12.12	6.35	–	–
Old Deerfield Potato & Market Garden 4–8–7	1.50	.81	.95	.96	4.22	9.03	7.45	–	–
Old Deerfield High Potash 4–8–10	1.96	.72	1.05	.77	4.50	9.02	10.52	–	–
Old Deerfield Lawnshrub 5–5–5	2.11	.61	.98	1.83	5.53	6.21	6.17	–	–
Old Deerfield Tobacco Starter Bone & Potash 5–5–15	.45	1.00	2.14	1.90	5.49	5.90	17.11*b*	–	–
Old Deerfield Neutral Fertilizer for Set Onions and Potatoes 5–8–7 (*d*)	3.32	.64	.61	.82	5.39	9.12	7.71	–	–
Old Deerfield Set Onion Formula, Potash other than Muriate 5–8–7	1.86	1.44	1.18	.92	5.40	9.04	7.12*b*	3.72	2.00
Old Deerfield Set Onion Formula, Potash other than Muriate 5–8–7	1.57	1.51	1.45	.85	5.38	9.12	7.18*b*	2.89	2.00
Old Deerfield Potato 5–10–10	1.96	.84	1.43	.96	5.19	10.96	10.84	–	–
Old Deerfield Complete Tobacco 6–3–6	.42	.80	1.36	4.12	6.70	4.35	7.10*b*	–	–
Old Deerfield High Grade Tobacco 6–3–7	.39	.70	2.11	3.23	6.43	5.50	7.86*b*	–	–

Old Deerfield Grass Top Dressing 7–7–7	4.04	1.57	1.08	.59	7.28	7.42	7.48	–	–
Old Deerfield Concentrated 8–16–14	3.52	.97	2.97	.96	8.42	15.34	15.24	–	–
Old Deerfield Concentrated Potato Fertilizer 8–16–20	3.42	1.13	2.96	1.17	8.68	15.44	21.89	–	–
Old Deerfield Concentrated Potato, Potash other than Muriate 8–16–20	3.43	.62	3.13	1.06	8.24	15.41	21.11*b*	3.79	2.00
Olds & Whipple, Inc.									
O & W 3–10–4 Corn Special Fertilizer	1.64	.68	.12	.71	3.15	10.33	4.25	–	–
O & W 4–3–12 Special Fertilizer	.10	1.05	1.80	2.08	5.03	5.20	16.55*b*	–	–
O & W 4–3–12 Special Fertilizer	.04	.65	2.98	1.86	5.53	4.67	12.98*b*	–	–
O & W 4–3–12 Special Fertilizer	–	.60	2.33	2.09	5.02	5.63	15.82*b*	–	–
O & W 4–8–4 Market Garden Fertilizer	2.05	.70	.49	.86	4.10	7.93	4.14	–	–
O & W 4–8–7 Potato & General Purpose Fertilizer	2.31	.56	.58	.58	4.03	7.91	6.87	–	–
O & W 4–8–7 Potato & General Purpose Fertilizer	2.45	.53	.58	.64	4.20	8.17	7.19	–	–

b In forms other than muriate.
d Basicity equivalent to 48 pounds of calcium carbonate per ton.

Mixtures Substantially Complying with Guarantees — Continued.

Name of Manufacturer and Brand	Nitrogen Found					Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found
	In Ammoniacal Forms	In Nitrate Forms	Water Soluble Organic	Water Insoluble Organic	Total		
Olds & Whipple, Inc.—Concluded							
O & W 5-3-5 Complete Tobacco Fertilizer	.16	.70	.63	3.48	4.97	3.30	5.77*b*
O & W 5-5-15 High Grade Tobacco Starter & Potash Compound	.17	1.54	1.63	1.70	5.04	5.81	15.45*b*
O & W 5-8-7 Potato & General Purpose Fertilizer	2.97	.75	.69	.69	5.10	8.02	7.12
O & W 5-10-5 Market Garden Fertilizer	2.32	.94	1.31	.61	5.18	10.17	5.12
O & W 5-10-10 Fertilizer	3.21	.69	.64	.72	5.26	9.94	11.09
O & W 5-10-10 Fertilizer	3.16	.71	.65	.75	5.27	10.06	10.74
O & W 6-3-6 Blue Label Tobacco Fertilizer	.37	.69	1.09	4.01	6.16	3.59	6.75*b*
O & W 7-7-7 Top Dressing & Grass Fertilizer	2.98	2.85	.65	.84	7.33	7.13	7.21
O & W 8-16-20 Fertilizer	4.38	.90	2.48	.74	8.50	15.95	21.18
F. G. Phillips Co.							
Ferti-Flora 3-3-3	1.30	1.91	.06	–	3.27	3.23	2.91
Plantabbs Co.							
Fulton's Plantabbs 11-15-20	3.71	7.83	.12	.03	11.69	19.54	25.73
Plantspur Products Co.							
Plantspur Fertilizer 3-3-2	2.67	.04	.09	.40	3.20	2.87	2.16
Rogers & Hubbard Co.							
Gro-Fast Plant Food 5-6-6	2.30	.20	.38	2.84	5.72	6.47	5.20

Hubbard's All Soils Fertilizer 4–8–4	1.55	.54	1.35	.74	4.18	8.14	4.20
Hubbard's Alsop Mixture #2 5–4–8	.09	1.47	1.00	2.89	5.45	4.06	10.61*b*
Hubbard's Climax Tobacco Fertilizer 5–3–5	.17	.77	.81	3.53	5.28	3.59	6.99*b*
Hubbard's Corn Fertilizer 4–8–7	1.74	.56	.33	1.56	4.19	8.36	7.51
Hubbard's Corn & Grain Fertilizer 3–10–4	1.25	.50	.87	.65	3.27	10.72	4.40
Hubbard's Cranberry Fertilizer 5–6–4	2.55	.39	1.52	.38	4.84	6.57	4.37
Hubbard's Fruit Fertilizer 8–8–8	5.59	2.24	.17	.16	8.16	8.72	8.26
Hubbard's Golf Course Fertilizer 8–6–2	1.45	.09	3.89	3.72	9.15	6.14	2.06
Hubbard's High Potash Fertilizer 4–8–10	1.76	.46	1.34	.73	4.29	8.71	9.82
Hubbard's Potato Fertilizer 5–8–7	1.75	.64	1.45	1.18	5.02	8.57	7.22
Hubbard's Seeding Fertilizer 3–7–6	2.14	–	.29	1.23	3.66	9.66	6.26
Hubbard's Tobacco Grower 6–3–6	.16	.93	1.79	3.41	6.29	3.86	7.26*b*
Hubbard's Tobacco Starter 5–5–15	.16	2.35	1.36	1.28	5.15	6.06	16.14*b*
Hubbard's Top Dressing 8–5–8	.21	7.99	.08	.61	8.92	6.26	8.32
Hubbard's Vegetable Manure 5–8–10	1.94	.75	1.40	1.35	5.44	8.90	10.05
Red H Brand 3–10–4	2.24	.50	.25	.37	3.36	10.54	4.77
Red H Brand 4–8–4	2.55	.78	.53	.41	4.27	8.47	3.96
Red H Brand 4–8–7	2.66	.60	.63	.40	4.29	8.30	6.86
Red H Brand 4–8–10	2.62	.51	.57	.39	4.09	8.26	9.43
Red H Brand 5–8–7	3.46	.71	.56	.44	5.17	8.34	7.67
Red H Brand 5–8–10	2.31	.44	2.20	.40	5.35	9.07	10.17
Red H Brand 5–10–5	3.85	.29	1.13	.38	5.65	9.39	5.27

b In forms other than muriate.

Mixtures Substantially Complying with Guarantees — Continued.

Name of Manufacturer and Brand	Nitrogen Found					Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found
	In Ammoniacal Forms	In Nitrate Forms	Water Soluble Organic	Water Insoluble Organic	Total		
Rogers & Hubbard Co.—Concluded							
Red H Brand 5-10-10	3.63	.73	.55	.39	5.30	10.36	10.32
Red H Brand 7-6-6	4.85	.35	1.62	.40	7.22	6.31	6.22
Red H Brand 7-7-7	4.64	.20	1.85	.37	7.06	7.72	7.07
Red H Brand 7-7-7	4.69	.79	1.34	.34	7.16	7.44	7.56
Red H Brand 8-16-14	5.40	1.08	1.62	.21	8.31	15.52	14.15
Red H Brand 8-16-14	5.19	.65	2.02	.24	8.10	15.25	15.29
Red H Brand 8-16-20	5.05	.90	2.00	.22	8.17	15.80	21.27
Red H Brand 8-16-20	5.47	.72	2.16	.25	8.60	16.67	21.01
Scarborough Testing Gardens, Inc.							
T X 40 .59-.27-.23	–	–	–	–	.48	.28	.36
O. M. Scott & Sons Co.							
Scotts Turf Builder 10-6-4	6.43	–	.48	3.57	10.48	6.22	4.54
M. L. Shoemaker Division of Wilson & Co., Inc.							
"Swift Sure" 4-10-0 Tobacco Starter	2.32	.19	.89	.67	4.07	10.27	–
Standard Wholesale Phosphate & Acid Works, Inc.							
Standard 4-8-4	2.02	.78	.87	.48	4.15	8.16	5.15
Standard 4-8-7	3.07	.30	.45	.37	4.19	7.30	6.73
Standard 4-8-7	2.95	.49	.45	.34	4.23	8.25	7.21

Standard 5–8–7	3.83	.15	.71	.40	5.09	9.22	6.57
Standard 5–10–10	2.50	1.18	.98	.39	5.05	10.08	10.12
Standard 7–7–7	4.20	.22	1.91	.46	6.79	7.44	7.86
Standard 7–7–7	5.32	.81	.60	.40	7.13	8.44	7.91
Swift & Company Fertilizer Works							
Roselawn 5–8–7	3.46	.26	.83	.44	4.99	8.06	7.18
Swift's Red Steer 3–12–6	2.25	–	.61	.35	3.21	11.79	6.14
Swift's Red Steer 4–8–10	2.59	.19	.61	.38	3.77	8.23	9.98
Swift's Red Steer 4–8–10	2.52	.58	.56	.38	4.04	8.31	10.27
Swift's Red Steer 5–8–7	3.58	.12	.83	.47	5.00	7.90	7.08
Vigoro 4–12–4	3.46	.01	.38	.23	4.08	11.60	4.41
F. Sylvester & Son							
Dove Brand Fertilizer 4–6–3	2.40	.03	.77	.83	4.03	7.12	4.16
Synthetic Nitrogen Products Corporation							
Nitrophoska 15–30–15	13.19	1.95	.36	.16	15.66	31.08	17.27
Tennessee Corporation							
Loma (5–10–4)	4.05	.42	.17	.51	5.15	10.19	4.19
Universal Chemical Co.							
Electra 4–9–3	2.45	.36	.56	2.58	5.95	10.16	2.58
Virginia-Carolina Chemical Corporation							
V-C Fairway Fertilizer 6–8–4	5.44	.03	.82	.13	6.42	8.21	4.63
C. P. Washburn Co.							
Corn and Vegetable 4–8–4	2.82	.49	.56	.44	4.31	7.84	4.50

Mixtures Substantially Complying with Guarantees — Concluded.

Name of Manufacturer and Brand	Nitrogen Found					Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found
	In Ammoniacal Forms	In Nitrate Forms	Water Soluble Organic	Water Insoluble Organic	Total		
C. P. Washburn Co.—Concluded							
Market Garden 5–8–7	3.63	.69	.30	.40	5.02	8.00	7.16
Special Potato 4–8–10	2.64	.70	.28	.38	4.00	7.94	9.93
Top Dressing 7–6–6	5.69	.48	.14	.32	6.63	6.32	6.27
Top Dressing 7–6–6	6.31	.48	.07	.35	7.21	6.32	6.24
Woodruff Fertilizer Works, Inc.							
Woodruff's 4–8–7 Fertilizer	2.85	.14	.42	.75	4.16	7.64	7.01
Woodruff's Big Crop Fertilizer 5–8–7	3.05	.67	.44	.94	5.10	7.80	6.74
Woodruff's Market Garden Fertilizer 4–8–4	2.27	.14	.78	.82	4.01	7.66	4.32
Woodruff's Onion Special Fertilizer 4–10–4	2.99	.03	.41	.70	4.13	9.69	4.29
Woodruff's Tobacco Starter 5–5–15	.15	1.62	2.75	.65	5.17	6.06	14.73*b*
Woodruff's Tobacco Special Fertilizer 6–3–6	.25	.97	1.25	3.34	5.81	3.49	7.09*b*
Woodruff's Top Dresser 7–6–6	2.30	3.16	.93	.72	7.11	5.90	6.11

b In forms other than muriate.

CHEMICALS AND RAW PRODUCTS.

Summary of Results of the Inspection of Unmixed Fertilizers

Material.	Number of Analyses Made.	Average Percentage of Nitrogen	Average Percentage of Total Phosphoric Acid.	Average Percentage of Available Phosphoric Acid.	Average Percentage of Water Soluble Potash.	Average Selling Price Per Ton.	Cost of One Pound of Plant Food (Cents).
Nitrate of soda	5	16.18	–	–	–	$34.77	10.74 (nitrogen)
Nitrate of potash	4	13.14	–	–	41.87*a*	67.41	10.74 (nitrogen) 4.68 (potash)
Nitrate of soda-potash	2	15.18	–	–	15.06*b*	53.77	12.36 (nitrogen) 5.39 (potash)
Nitrate of lime	1	15.48	–	–	–	43.43	14.03 (nitrogen)
Cal-Nitro	4	20.32	–	–	–	38.14	9.38 (nitrogen)
Sulfate of ammonia	10	20.64	–	–	–	34.55	8.37 (nitrogen)
Synthetic urea	2	43.09	–	–	–	64.20	7.45 (nitrogen)
Cyanamid	5	21.28	–	–	–	39.16	9.20 (nitrogen)
Ammo-Phos	2	11.16	50.29	49.05	–	58.89	8.47 (nitrogen) 4.08 (available phosphoric acid)
Cottonseed meal	36	6.51	2.93	–	1.76	34.28	22.23 (nitrogen)
Soy bean meal	20	7.39	1.53	–	2.21	33.88	19.97 (nitrogen)
Linseed meal	2	6.02	1.88	–	1.41	34.00	25.08 (nitrogen)
Castor pomace	5	5.40	1.94	–	.95	29.24	24.14 (nitrogen)
Dried blood	2	13.22	–	–	–	81.58	30.85 (nitrogen)
Milorganite	1	6.38	3.31	2.95	–	37.08	27.12 (nitrogen) 4.21 (available phosphoric acid)
Horn and hoof meal	1	14.57	–	–	–	80.00	27.45 (nitrogen)
Superphosphate 16%	12	–	16.49	16.06	–	12.84	4.00 (available phosphoric acid)
Superphosphate 20%	10	–	20.54	20.19	–	18.79	4.65 (available phosphoric acid)
Superphosphate 40%	1	–	41.63	40.63	–	34.80	4.28 (available phosphoric acid)
Superphosphate 47% (*c*)	19	–	48.51	47.75	–	38.00	3.98 (available phosphoric acid)
Precipitated bone	4	–	38.52	37.19	–	63.62	8.55 (available phosphoric acid)
Basic slag phosphate	1	–	17.08	14.96	–	35.00	11.70 (available phosphoric acid)
Phosphate rock, finely ground	1	–	33.57	–	–	20.00	–
Muriate of potash 50%	7	–	–	–	50.40	39.69	3.94 (potash)
Muriate of potash 60%	9	–	–	–	61.65	37.43	3.04 (potash)
High grade sulfate of potash	6	–	–	–	51.40*d*	52.29	5.09 (potash)
Sulfate of potash-magnesia	1	–	–	–	29.22*e*	40.05	6.85 (potash)
Cotton hull ashes	6	–	–	–	34.33*f*	42.40	6.18 (potash)
Wood ashes	1	–	–	–	5.55	–	–
Dry ground fish	6	10.15	6.44*g*	–	–	72.10	32.38 (nitrogen) 4.93 (phosphoric acid)
Animal tankage	7	8.56	9.48	–	–	46.00	22.99 (nitrogen) 3.50 (phosphoric acid)
Ground bone	26	3.53	23.14	–	–	43.53	30.85 (nitrogen) 4.70 (phosphoric acid)
Process tankage	2	7.46	.63	–	–	32.36	21.72 (nitrogen)
Ground tobacco stems	1	1.98	.73	–	7.60	24.30	–
Pulverized manures:							
Sheep	9	2.06	1.72	–	2.83	46.90	–
Sheep and goat	5	1.69	1.99	–	3.56	37.34	–
Cattle	5	2.06	2.34	–	2.18	60.00	–
Poultry	3	4.90	2.49	–	1.38	48.26	–
Poultry manure and peat	1	2.92	2.84	–	1.67	–	–
Sheep manure and wool waste	1	1.36	.33	–	4.07	35.00	–

a Average chlorine .33%.
b Average chlorine .05%.
c Distributed by the Agricultural Adjustment Administration.
d Average chlorine 1.72%.
e Average chlorine 1.12%.
f Average chlorine 3.02%.
g Average chlorine .11%.

Nitrogen Compounds.

The chemicals and unmixed materials under this heading are valued chiefly for the nitrogen which they contain. Some of them, however, contain more than this one element: the nitrate of potash containing potash; the calcium nitrate and cyanamid containing lime; and the organic vegetable substances containing small quantities of phosphoric acid and potash, as will be noticed by a reference to the summary table on the previous page.

Brands showing a commercial shortage of one dollar or more per ton are listed by themselves, serious deficiencies being emphasized by boldface type.

Sulfate of Ammonia and Nitrate of Soda.

Manufacturer.	Sulfate of Ammonia.			Nitrate of Soda.		
	Number of Samples.	Nitrogen.		Number of Samples.	Nitrogen.	
		Found.	Guaranteed.		Found.	Guaranteed.
American Agricultural Chemical Co.	1	20.67	20.50	–	–	–
	1	20.52	20.50	–	–	–
	1	20.61	20.50	–	–	–
Barrett Co.	19*a*	20.74	20.56	15*a*	16.23	16.00
	1*a*	20.86	20.56	1*a*	16.27	16.00
	–	–	–	1*a*	16.02	16.00
Chilean Nitrate Sales Corp.	–	–	–	1*b*	16.09	16.00
	–	–	–	1*c*	16.22	16.00
Consolidated Rendering Co.	1	21.08	20.50	–	–	–
Eastern States Farmers' Exchange	1	20.99	20.50	–	–	–
Ford Motor Co.	1	20.96	20.80	–	–	–
Goulard & Olena, Inc.	1	20.87	20.75	–	–	–
International Agricultural Corp.	1	20.55	20.56	–	–	–
Old Deerfield Fertilizer Co., Inc.	1	20.78	20.50	–	–	–

a Arcadian. *b* Champion Brand. *c* Old Style.

Nitrate of Potash, Nitrate of Soda-Potash.

Manufacturer.	Number of Samples.	Nitrogen.		Water Soluble Potash		Chlorine.
		Found.	Guaranteed.	Found.	Guaranteed.	
Apothecaries Hall Co.	1	12.97	12.00	44.26	43.00	.84
Chilean Nitrate Sales Corp.	1*a*	15.30	15.00	15.32	14.00	.05
Old Deerfield Fertilizer Co., Inc.	1	13.64	13.00	44.10	44.00	.09
	1*a*	14.98	14.00	14.63	14.00	.05

Samples Showing Commercial Shortage of More than $1 per Ton

American Agricultural Chemical Co.	1*b*	13.04	13.00	**40.56**	44.00	.68
Eastern States Farmers' Exchange	1*c*	**12.12**	13.00	**38.96**	44.00	.86
	1*d*	13.02	13.00	**41.33**	44.00	.39

a Nitrate of Soda-Potash *b* Commercial shortage $2.48 per ton
c Commercial shortage $5.59 per ton. *d* Commercial shortage $1.63 per ton.

Calcium Nitrate, Cal-Nitro, Calcium Cyanamid and Synthetic Urea

Manufacturer and Brand	Number of Samples	Nitrogen		Moisture
		Found	Guaranteed	
American Cyanamid Co.				
Aero" 21% Cyanamid	1	21.65	21.00	.47
Aero" 21% Cyanamid	1	20.99	21.00	.49
Aero" 21% Cyanamid	1	21.50	21.00	.27
Aero" 21% Cyanamid	1	21.43	21.00	.05
Aero" 22% Cyanamid	1	22.47	22.00	.00
Consolidated Rendering Co.				
Cal Nitro	1	20.03	20.50	3.60
Cal Nitro	1	20.07	20.50	1.50
E. I. du Pont de Nemours & Co., Inc.				
Uramon	1	42.32	42.00	.17
Uramon	1	42.50	42.00	.63
Eastern States Farmers' Exchange				
Eastern States Calnitro	1	20.59	20.50	2.82
Eastern States Agricultural Urea	1	43.14	42.00	.08
Synthetic Nitrogen Products Corp.				
Calcium Nitrate (Nitrate of Lime)	1	15.48	15.00	5.91

Sample Showing Commercial Shortage of More than $1 per Ton

Consolidated Rendering Co.				
Cal Nitro	1*a*	**19.93**	20.5	2.53

a Commercial shortage $1.06 per ton

Cottonseed Meal.

Manufacturer and Brand	Nitrogen	
	Found	Guaranteed
Apothecaries Hall Co.		
Liberty	6.72	6.56
Ashcraft-Wilkinson Co.		
Coweta Brand	6.51	6.56
Coweta Brand	6.51	6.56
Coweta Brand	6.48	6.56
Coweta Brand	6.61	6.56
Coweta Brand	6.47	6.56
Coweta Brand	6.52	6.56
Coweta Brand	6.44	6.56
Coweta Brand	6.44	6.56
Coweta Brand	6.62	6.56
Coweta Brand	6.56	6.56
Humphreys-Godwin Co.		
Dixie Brand	6.41	6.58
Dixie Brand	6.56	6.58
Dixie Brand	6.41	6.58
Dixie Brand	6.77	6.58
Dixie Brand	6.51	6.58
Dixie Brand	6.57	6.58
Dixie Brand	6.52	6.58
Dixie Brand	6.57	6.58
Dixie Brand	6.64	6.58
Dixie Brand	6.64	6.58
Dixie Brand	6.63	6.58
Dixie Brand	6.56	6.58
Humphreys-Godwin Co.—concluded		
Dixie Brand	6.57	6.58
Dixie Brand	6.54	6.58
Dixie Brand	6.62	6.58
L. B. Lovitt & Co.		
Lovit Brand	6.49	6.56
Lovit Brand	6.76	6.56
Lovit Brand	6.44	6.56
Lovit Brand	6.61	6.56
Lovit Brand	6.63	6.56
Lovit Brand	6.54	6.56
Lovit Brand	6.61	6.56

Samples Showing Commercial Shortage of More than $1 per Ton

Humphreys-Godwin Co.		
Dixie Brand	**6.28***a*	6.58
L. B. Lovitt & Co.		
Lovit Brand	**6.28***b*	6.56
Lovit Brand	**6.35***c*	6.56

a Commercial shortage $2.05 per ton *b* Commercial shortage $1.27 per ton.
c Commercial shortage $1.41 per ton.

Soy Bean Meal

Manufacturer and Brand	Nitrogen		Manufacturer and Brand	Nitrogen	
	Found	Guaranteed		Found	Guaranteed
Archer-Daniels-Midland Co.			**A. E. Staley Manufacturing Co.**		
Archer Brand 44%	7.47	7.00	Staley's 41%	7.13	6.56
Archer Brand 44%	7.35	7.00	Staley's 41%	7.62	6.56
Archer Brand 44%	7.61	7.00	Staley's 41%	7.06	6.56
			Staley's 41%	7.03	6.56
Central Soya Co., Inc.			Staley's 41%	7.04	6.56
Central Star Brand 44%	7.32	7.04	Staley's 41%	7.21	6.56
Central Star Brand 44%	7.53	7.04	Staley's 41%	7.12	6.56
Central Star Brand 44%	7.63	7.04	Staley's 41%	7.12	6.56
Central Star Brand 44%	7.40	7.04	Staley's 41%	7.17	6.56
Central Star Brand 44%	7.51	7.04	Staley's 41%	7.17	6.56
Central Star Brand 44%	7.67	7.04			
Central Star Brand 44%	7.58	7.04			

Castor Pomace and Linseed Meal

Manufacturer	Brand	Nitrogen		Moisture
		Found	Guaranteed	
American Agricultural Chemical Co.	Castor Pomace	5.70	4.50	11.73
	Castor Pomace	4.77	4.50	11.15
	Castor Pomace	4.62	4.50	10.74
Apothecaries Hall Co.	Castor Pomace	5.98	4.50	12.00
Archer-Daniels-Midland Co.	Old Process Linseed Meal 37%	6.02	6.00	10.64
	Old Process Linseed Meal 37%	6.12	6.00	10.07
Armour Fertilizer Works	Castor Pomace	5.59	4.50	10.12
Spencer Kellogg & Sons, Inc.	Kellogg's Castor Pomace	5.31	4.52	10.18

Dried Blood, Milorganite, Horn and Hoof Meal, Process Tankage, and Organo

Manufacturer and Brand.	Number of Samples.	Nitrogen.		Phosphoric Acid.		Moisture
		Found.	Guaranteed.	Found	Guaranteed.	
American Agricultural Chemical Co.						
Agrinite	1	8.63	8.50	–	–	5.44
Consolidated Chemical Industries, Inc.						
Protena Process Fertilizer Tankage	1	7.37	7.00	–	–	4.47
Consolidated Rendering Co.						
Dried Blood	1	13.20	12.00	–	–	10.65
Fertilizer Sales Corp.						
Organo No. 1	1*a*	2.82	1.75	3.07	1.00	11.15
Orango No. 2	1	6.80	6.00	–	–	12.34
John Reardon & Sons Division of Wilson & Co., Inc.						
Rearco Dried Blood	1	13.32	12.00	–	–	11.95
Sewerage Commission of the City of Milwaukee						
Milorganite	1	6.38	6.00	3.31	2.75	5.92

Sample Showing Commercial Shortage of More than $1 per Ton

Apothecaries Hall Co.						
Steamed Horn & Hoof Meal	1*b*	14.57	14.80	–	–	10.01

a Water soluble potash found .64%, guaranteed .5%.
b Commercial shortage $1.24 per ton.

Phosphoric Acid Compounds.

Superphosphate, Precipitated Bone, and Basic Slag Phosphate.

Manufacturer and Brand.	Number of Samples.	Total Phosphoric Acid.	Available Phosphoric Acid		Moisture
			Found.	Guaranteed.	
Acme Guano Co.					
Acme 20% Superphosphate	1	21.12	20.40	20.00	1.71
American Agricultural Chemical Co.					
AA 16% Superphosphate	17	16.48	16.01	16.00	7.19
AA 16% Superphosphate	1	16.78	16.17	16.00	7.99
AA 16% Superphosphate	1	16.45	16.06	16.00	7.94
AA 20% Superphosphate	1	20.95	20.18	20.00	2.70
AA 20% Superphosphate	1	20.20	19.87	20.00	9.73
Co-Op 16% Superphosphate	1	16.37	16.04	16.00	8.08
Apothecaries Hall Co.					
Superphosphate 16%	1	16.84	16.39	16.00	7.33
Superphosphate 20%, Granular	1	20.70	20.02	20.00	2.12
Armour Fertilizer Works					
Armour's Big Crop Superphosphate 16%	1	16.51	15.65	16.00	6.76
Armour's Big Crop Superphosphate 16%	1	16.89	16.16	16.00	6.46
Armour's Big Crop Superphosphate 20%	1	21.03	20.00	20.00	6.62
Consolidated Rendering Co.					
Superphosphate 16%	1	16.60	16.23	16.00	5.37
Superphosphate 20%	1	20.66	20.44	20.00	6.41
Davison Chemical Corp.					
Davco Granulated 20% Superphosphate	1	21.50	20.90	20.00	1.73
Eastern States Farmers' Exchange					
Eastern States Precipitated Bone	1	41.17	39.14	38.00	7.84
Eastern States Superphosphate 20%	1	21.04	20.44	20.00	2.59
Eastern States Superphosphate 40%	1	41.63	40.36	40.00	2.84
International Agricultural Corp.					
International Basic Slag	1	17.08	14.96	14.40	.35
International Superphosphate 16%	1	16.52	16.07	16.00	5.39
International Superphosphate 20%	1	20.19	19.76	20.00	8.74
Old Deerfield Fertilizer Co., Inc.					
Old Deerfield Superphosphate 16%	1	17.09	16.69	16.00	5.05
Old Deerfield Superphosphate 20%	1	20.18	20.08	20.00	4.67
Rogers & Hubbard Co.					
Hubbard's Superphosphate 16%	1	16.82	16.72	16.00	4.20
Hubbard's Superphosphate 20%	1	20.06	19.76	20.00	5.72
Ruhm Phosphate & Chemical Co.					
Red Seal Brand Ruhm's Phosphate Rock (Washed and Ground)	1	33.57*a*	–	–	.88
C. P. Washburn Co.					
Superphosphate 16%	1	16.96	16.44	16.00	6.03

Samples Showing Commercial Shortage of More than $1 per Ton

Berkshire Chemical Co.					
Berkshire Precipitated Bone	1*b*	35.71	**35.21**	38.00	14.88
Old Deerfield Fertilizer Co., Inc.					
Old Deerfield Precipitated Bone	1*c*	37.63	**36.54**	38.00	16.30
Old Deerfield Precipitated Bone	1*d*	38.93	**37.17**	38.00	13.85

a Guaranteed total phosphoric acid 33%: no available phosphoric acid guaranteed.

b Commercial shortage $4.96 per ton.

c Commercial shortage $2.59 per ton.

d Commercial shortage $1.47 per ton.

Potash Compounds.

Muriate and High Grade Sulfate of Potash and Sulfate of Potash-Magnesia.

Manufacturer.	Muriate of Potash.			High Grade Sulfate of Potash.			
	Number of Samples.	Water Soluble Potash.		Number of Samples.	Water Soluble Potash		Chlorine.
		Found	Guaranteed.		Found.	Guaranteed.	
American Agricultural Chemical Co.	1	50.70	50.00	–	–	–	–
	3	60.93	60.00	–	–	–	–
	1	60.19	60.00	–	–	–	–
American Potash & Chemical Corp.	1	61.23	60.00	1	52.26	48.00	1.54
Apothecaries Hall Co.	1	61.49	60.00	–	–	–	–
Consolidated Rendering Co.	1	49.59	50.00	1	49.13	48.00	1.94
	1	60.30	60.00	1	49.21	48.00	2.44
Eastern States Farmers' Exchange	1	61.30	60.00	1	49.72	48.00	1.44
	1	61.20	60.00	1	50.15	48.00	1.62
French Potash Co., Inc.	–	–	–	1	49.65	48.00	1.64
International Agricultural Corp.	1	50.97	50.00	–	–	–	–
	1	49.83	50.00	–	–	–	–
	21	61.83	60.00	–	–	–	–
	1	62.00	60.00	–	–	–	–
	1	60.16	60.00	–	–	–	–
N. V. Potash Export My., Inc.	–	–	–	1*a*	50.19	48.00	1.91
Old Deerfield Fertilizer Co., Inc.	1	50.50	50.00	1*b*	29.22	26.00	1.12
Potash Company of America	1	50.47	50.00	–	–	–	–
Rogers & Hubbard Co.	1	50.94	50.00	–	–	–	–

a Old Stock. *b* Sulfate of Potash-Magnesia.

Products Supplying Nitrogen and Phosphoric Acid.

Dry Ground Fish.

Manufacturer.	Number of Samples.	Nitrogen.		Phosphoric Acid.		Chlorine
		Found.	Guaranteed.	Found.	Guaranteed.	
Apothecaries Hall Co.	1	9.78	9.00	6.15	5.00	.12
Armour Fertilizer Works	1	10.04	9.46	7.12	5.00	.12
Eastern States Farmers' Exchange	1	10.16	9.00	6.20	5.00	.16
Old Deerfield Fertilizer Co., Inc.	1	9.80	9.46	6.37	5.00	.08
	1	10.86	9.00	6.50	5.00	.14

Sample Showing Commercial Shortage of More than $1 per Ton

Berkshire Chemical Co.	1*a*	9.21	9.46	6.83	5.00	.16

a Commercial shortage $1.79 per ton.

Ammo-Phos.

Manufacturer.	Number of Samples.	Nitrogen.		Phosphoric Acid.		
				Total.	Available.	
		Found.	Guaranteed.		Found.	Guaranteed.
American Cyanamid Co.	4	11.12	11.00	49.89	48.61	48.00
	1	11.16	11.00	50.30	49.06	48.00

Animal Tankage.

Manufacturer.	Number of Samples.	Nitrogen.		Total Phosphoric Acid.		Degree of Fineness.	
		Found.	Guaranteed.	Found.	Guaranteed.	Finer than 1/50 Inch.	Coarser than 1/50 Inch.
American Agricultural Chemical Co.	1	8.46	7.40	8.86	9.15	52.46	47.54
Consolidated Rendering Co.	1	7.42	7.40	12.90	9.15	34.96	65.04
A. W. Hunt	1	4.89	5.00	14.82	14.00	51.82	48.18
International Agricultural Corp.	20	8.74	8.00	9.14	4.58	51.77	48.23
	1	8.35	8.00	8.76	4.58	53.72	46.28
N. Roy & Son	1	7.81	7.00	10.64	8.00	50.71	49.29

Samples Showing Commercial Shortage of More than $1 per Ton

International Agricultural Corp.	1*a*	**6.90**	7.40	**8.41**	9.15	51.94	48.06
	1*b*	**7.17**	7.40	**7.95**	9.15	55.97	44.03

a Commercial shortage $4.38 per ton. *b* Commercial shortage $2.81 per ton.

Bone and Tankage

Manufacturer.	Number of Samples.	Nitrogen.		Total Phosphoric Acid.		Degree of Fineness.	
		Found.	Guaranteed.	Found.	Guaranteed.	Finer than 1/50 Inch.	Coarser than 1/50 Inch.
Consolidated Rendering Co.	1	4.06	4.00	21.75	20.00	42.78	57.22
Woodard Brothers	1	4.09	4.50	22.52	18.00	32.41	67.59

Ground Bone.

Manufacturer.	Number of Samples.	Nitrogen.		Total Phosphoric Acid.		Degree of Fineness.	
		Found.	Guaranteed.	Found.	Guaranteed.	Finer than 1/50 Inch.	Coarser than 1/50 Inch.
Acme Guano Co.	1	3.83	3.70	22.91	20.00	46.71	53.29
American Agricultural Chemical Co.	1	2.42	2.47	24.83	23.00	72.37	27.63
Apothecaries Hall Co.	1	2.90	2.25	23.00	22.00	68.14	31.86
	1*a*	2.78	2.47	28.53	22.00	72.28	27.72
	1	4.05	3.70	21.00	20.00	52.74	47.26
Armour Fertilizer Works	1	2.65	2.47	28.09	23.00	75.87	24.13
Berkshire Chemical Co.	1	2.37	2.05	27.55	25.00	68.42	31.58
Joseph Breck & Sons Corp.	1	4.05	2.47	22.58	22.88	67.72	32.28
Consolidated Rendering Co.	1	2.36	2.47	22.83	23.00	57.71	42.29
Eastern States Farmers' Exchange	1	2.99	2.30	24.33	23.00	62.74	37.26
Goulard & Olena, Inc.	1	4.33	2.40	22.81	22.75	51.70	48.30
International Agricultural Corp.	1	3.08	2.47	22.48	23.00	71.16	28.84
National Electro Chemical Co.	1	4.09	3.50	22.39	22.00	65.57	34.43
	1*a*	2.08	2.00	24.80	18.00	73.04	26.96
Old Deerfield Fertilizer Co., Inc.	1	2.61	2.47	26.12	22.00	73.66	26.34
John Reardon & Sons, Division of Wilson & Co., Inc.	1	3.54	2.47	21.54	21.00	61.48	38.52
Rogers & Hubbard Co.	1	4.17	3.70	22.69	20.00	58.87	41.13
	1	3.91	3.70	26.02	24.70	92.00	8.00
C. P. Washburn Co.	1	2.86	2.47	26.55	23.00	71.68	28.32

Samples Showing Commercial Shortage of More than $1 per Ton

American Agricultural Chemical Co.	1*b*	**2.31**	2.47	24.17	23.00	66.40	33.60
Fertilizer Sales Corp.	1*c*	**3.66**	4.00	**15.56**	17.00	99.00	1.00
Goulard & Olena, Inc.	1*d*	4.07	3.70	**20.47**	22.75	58.09	41.91
A. H. Hoffman, Inc.	1*e*	4.11	3.70	**16.59**	20.00	46.59	53.41
Rogers & Hubbard Co.	1*f*	**2.00**	2.47	26.95	23.00	66.59	33.41
	1*g*	**2.17**	2.47	28.44	23.00	75.05	24.95
Standard Wholesale Phosphate & Acid Works, Inc.	1*h*	**2.32**	2.47	23.49	23.00	55.50	44.50
Swift & Company Fertilizer Works	1*i*	2.81	2.47	**21.98**	23.00	69.04	30.96

a Old stock.
b Commercial shortage $1.15 per ton.
c Commercial shortage $4.08 per ton.
d Commercial shortage $1.92 per ton.
e Commercial shortage $3.75 per ton.
f Commercial shortage $3.37 per ton.
g Commercial shortage $2.15 per ton.
h Commercial shortage $1.08 per ton.
i Commercial shortage $1.12 per ton.

Miscellaneous Fertilizer Materials

Cotton Hull Ashes and Wood Ashes

Manufacturer and Brand	Water Soluble Potash		Chlorine	Moisture
	Found	Guaranteed		
Apothecaries Hall Co.				
Cotton Hull Ashes	38.31	30.00	3.13	2.39
Cotton Hull Ashes	32.63	30.00	3.30	4.54
Berkshire Chemical Co.				
Berkshire Cotton Hull Ash	29.64	30.00	2.95	7.27
Berkshire Cotton Hull Ash	30.69	30.00	2.78	7.83
Eastern States Farmers' Exchange				
Eastern States Cottonhull Ash	41.81	38.00	3.57	4.24
J. W. Joynt				
Joynt Brand Wood Ashes	5.55	3.00	.12	11.21
Old Deerfield Fertilizer Co., Inc.				
Old Deerfield Cotton Hull Ashes	30.96	30.00	2.38	5.67

Sterilized Ground Tobacco Stem Meal

Manufacturer	Nitrogen		Water Soluble Potash		Phosphoric Acid	Organic Matter	Moisture
	Found	Guaranteed	Found	Guaranteed			
Tobacco By-Products & Chemical Corp., Inc.	1.98	1.16	7.44	4.00	.73	58.08	7.81

Commercial Peat Products.

Manufacturer and Brand.	Number of Samples.	Moisture	Organic Matter.	Mineral Matter.	Nitrogen.	
					Found.	Guaranteed.
L. H. Brague						
Hinsdale Leafmold (Soil-Co)	1	62.08	31.98	5.94	.68	.50
Florida Humus Co.						
Florida Humus	1	23.24	70.60	6.16	2.75	2.00

Pulverized Animal Manures.

Manufacturer.	Brand.	Number of Samples.	Total Nitrogen.		Total Phosphoric Acid.		Water Soluble Potash.		Organic Matter.	Moisture.
			Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.		
Acme Guano Co.	Acme Domestic Sheep Manure	1	2.65	1.85	2.08	1.50	2.62	1.50	63.84	9.41
American Agricultural Chemical Co.	Pulverized Sheep & Goat Manure	1	1.69	1.25	1 19	1.00	4.13	2.00	36.43	27.40
Apothecaries Hall Co.	Liberty Domestic Sheep Manure	1	1.34	1.00	.83	.50	1.02	1.00	41.91	8.53
Armour Fertilizer Works	Sheep & Goat Manure	1	2.01	1.25	2.42	1.00	3.82	2.00	51.34	14.29
Atkins & Durbrow, Inc.	Driconure	1	2.66	2.00	3.27	1.00	1.55	1.00	57.40	16.67
Berkshire Chemical Co.	Berkshire Sheep & Goat Manure	1	1.70	1.25	1.34	1.00	3.62	2.00	39.15	10.05
Buell Fertilizer Co.	Buell Peat Poultry Manure "Two-In-One"	1*a*	2.92	3.00	2 84	3.00	1.67	1.50	62.27	12.54
Collins Seed Service Co.	Collins Special Sheep Manure	1	3.12	2.25	3.66	1.00	4.07	3.00	40.20	12.54
Consolidated Rendering Co.	Corenco Sheep Manure	1	1.00	1.25	1.38	1.00	2.32	2.00	23.94	32.11
Daedalus Farm	Poma Pulverized Poultry Manure	1	1.99	1.00	1.73	1.00	.93	.50	23.65	4.82
Davey Tree Expert Co.	Davey Shredded Cattle Manure	1	1.95	1.00	3.09	1.00	2.37	2 00	75.70	6.79
Goulard & Olena, Inc.	G & O Sheep Manure	1	1.72	1.50	1.30	1.50	4.85	2.00	43.55	6.33
A. H. Hoffman, Inc.	Hoffman's Cow Manure (Dehydrated)	1	2 03	2.00	3.32	2.00	2.23	2.00	78.05	5.86
	Hoffman's Sheep Manure (Kiln-Dried)	1	2.14	1.85	.73	1.00	1.25	2.00	55.20	5.43
International Agricultural Corp.	International Caribee Sheep Manure	1	2.18	1.25	2.26	1.00	3.84	2.00	43.39	13.50
No wood Brand Fertilizer Co.	Norwood Brand Sheep Manure, Screened Wool Waste	1	1 36	1.83	.33	.89	4.07	1 03	34 98	5.15

Premier Poultry Manure Division, North American Car Corp.	Premier Brand Pulverized Poultry Manure	1	5.93	4.93	2.49	2.75	1.43	1.30	69.45	7.61
	Premier Brand Pulverized Sheep Manure	1	2.41	1.65	2.10	1.00	2.48	2.00	58.53	8.39
Pulverized Manure Co.	Wizard Brand Cow Manure	1	2.33	2.00	1.38	1.00	1.83	1.00	67.59	6.13
	Wizard Brand Pulverized Sheep Manure	1	2.43	2.00	1.53	1.00	3.22	2.00	75.87	8.39
Ramshorn Mills, Inc.	Ramshorn Brand Sheep Manure—Wool Waste	1	1.86	2.00	.55	.50	2.09	4.50	35.28	6.16
John Reardon & Sons Division of Wilson & Co., Inc.	Rearco Sheep & Goat Manure	1	1.18	1.25	1.38	1.00	2.37	2.00	26.06	29.11
Rogers & Hubbard Co.	Hubbard's Sheep & Goat Manure	1	1.65	1.25	2.64	1.00	3.37	2.00	34.82	20.18
Swift & Company Fertilizer Works	Swift's Sheep Manure	1	2.14	1.85	1.30	1.00	3.22	1.75	66.08	5.13
Walker-Gordon Laboratory Co., Inc.	Bovung	1	2.00	2.00	2.04	2.00	2.19	2.00	76.27	9.72
Thomas Wood & Sons, Inc.	Woodgro Pure Cow Manure	1	2.07	2.00	4.03	2.00	2.39	3.00	58.69	10.06

a Old stock.

DEFINITIONS AND INTERPRETATIONS RELATING TO FERTILIZERS

The following definitions and interpretations have been adopted as official by vote of the Association of Official Agricultural Chemists of North America.

Definitions

An **acid-forming fertilizer** is one that is capable of increasing the residual acidity of soil.

Acidulated fish tankage, acidulated fish scrap, is the rendered product derived from fish and treated with sulfuric acid.

Activated sewage products are those made from sewage freed from grit and coarse solids and aerated after being inoculated with microorganisms. The resulting flocculated organic matter is withdrawn from the tanks, filtered with or without the aid of coagulants, dried, ground, and screened.

Agricultural liming material is material whose calcium and magnesium content is capable of neutralizing soil acidity.

Air-slaked lime is a product composed of variant proportions of the oxide, hydroxide and carbonate of calcium, or of calcium and magnesium, and derived from exposure of quick lime.

Ammoniated superphosphate is the product obtained when superphosphate is treated with ammonia or with a solution containing free ammonia and other forms of nitrogen dissolved therein.

The word **analysis,** as applied to fertilizer, shall designate the percentage composition of the product expressed in those terms that the law requires and permits.

Ashes from leached wood are unleached ashes resulting from burning wood that has been exposed to or digested in water or other liquid solvent, as in the extraction of dyes, so that a part of the plant food has been dissolved and removed.

Available phosphoric acid is the sum of the water-soluble and the citrate-soluble phosphoric acid.

"Basic" lime phosphate (lime-based superphosphate) is a superphosphate to which liming materials have been added in a quantity at least six per cent (6%) calcium carbonate equivalents in excess of the quantity required to convert all water-soluble phosphate to the citrate-soluble form.

Basic phosphate slag is a by-product in the manufacture of steel from phosphatic iron ores. The product shall be finely ground and shall contain no admixture of materials other than what results in the original process of manufacture. It shall contain not less than twelve per cent (12%) of total phosphoric acid (P_2O_5), not less than eighty per cent (80%) of which shall be soluble in two per cent (2%) citric acid solution according to the Wagner method of analysis. Any phosphate slag not conforming to this definition shall be designated **low grade.**

Bat guano is partially decomposed bat manure.

Bat manure is the dry excrement of bats.

A **brand** is a term, design, or trademark used in connection with one or several grades of fertilizers.

A **brand name** is a specific designation applied to an individual fertilizer.

Calcium nitrate (nitrate of lime) is a commercial product consisting chiefly of calcium nitrate, and it shall contain not less than fifteen per cent (15%) of nitrogen.

Charred peat is peat artificially dried at a temperature that causes partial decomposition.

Citrate-soluble ("reverted") phosphoric acid is that part of the total phosphoric acid in a fertilizer that is insoluble in water but soluble in a solution of citrate of ammonia according to the method adopted by the A.O.A.C.

Crude, inert, or slow-acting nitrogenous materials are unprocessed organic substances relatively high in nitrogen but having a very low value as plant food and showing a low activity by both the alkaline and neutral permanganate methods (below 50% and 80%, respectively).

Cyanamid is a commercial product composed chiefly of calcium cyanamid ($CaCN_2$), and it shall contain not less than twenty-one per cent (21%) of nitrogen.

Dicalcium phosphate is a manufactured product consisting chiefly of a dicalcic salt of phosphoric acid.

Dissolved bone is ground bone or bone meal that has been treated with sulfuric acid.

Dolomite is a mineral composed chiefly of carbonate of magnesium and calcium in substantially unimolal (1–1.19) proportions.

Dried blood is the collected blood of slaughtered animals, dried and ground and containing not less than twelve per cent (12%) of nitrogen in organic forms.

Dried, pulverized, or shredded manures are what the name indicates, and not mixtures of manures and other materials.

Fertilizer grade shall represent the minimum guaranty of its plant food expressed in terms of **nitrogen (not ammonia), available phosphoric acid,** and **water-soluble potash.**

Fish tankage, fish scrap, dry ground fish, fish meal fertilizer grade, is the dried ground product derived from rendered or unrendered fish.

Garbage tankage is the rendered, dried, and ground product derived from waste household food materials.

Ground limestone (coarse-ground limestone) is the product obtained by grinding either calcareous or dolomitic limestone so that all the material will pass a 10-mesh sieve, and at least fifty per cent (50%) will pass a 100-mesh sieve.

Ground raw bone is dried ground animal bones that have not been previously steamed under pressure.

Ground shells is the product obtained by grinding the shells of mollusks so that not less than fifty per cent (50%) shall pass a 100-mesh sieve. The product shall also carry the name of the mollusk from which said product is made.

Ground shell marl is the product obtained by grinding natural deposits of shell marl so that at least seventy-five per cent (75%) shall pass a 100-mesh sieve.

Ground steamed bone is ground animal bones that have been previously steamed under pressure.

Gypsum, land plaster, or crude calcium sulfate are products consisting chiefly of calcium sulfate. They may contain twenty per cent (20%) of combined water. (They do not neutralize acid soils.)

High calcic products are materials of which 90% or more of the total calcium and magnesium content consists of calcium oxide.

High magnesic products are materials in which more than 10 per cent of the total calcium and magnesium oxide consists of magnesium oxide.

Hoof and horn meal is processed dried, ground hoofs and horns.

Hydrated or slaked lime is a dry product consisting chiefly of the hydroxide of calcium and oxide-hydroxide of magnesium.

Kainit is a potash salt containing potassium and sodium chlorides and sometimes sulfate of magnesia with not less than twelve per cent (12%) of potash (K_2O).

Leached wood ashes are ashes from burned unleached wood with part of their plant food removed by artificial means or by exposure to rains, snows, or other solvent.

The word **lime** when applied to liming materials means either calcium oxide or calcium and magnesium oxides.

Manure salts are potash salts containing high percentages of chloride and from twenty per cent (20%) to thirty per cent (30%) of potash (K_2O). The term **double manure salts** should be discontinued.

Monoammonium phosphate (fertilizer grade) is a commercial salt made by combining phosphoric acid with ammonia. It shall contain not less than ten per cent (10%) of nitrogen and not less than forty-six per cent (46%) of available phosphoric acid.

Muriate of potash is a potash salt containing not less than forty-eight per cent (48%) of potash (K_2O), chiefly as chlorides.

Nitrate of potash is a salt containing not less than twelve per cent (12%) of nitrogen and forty-four per cent (44%) of potash (K_2O).

Nitrate of soda is commercial sodium nitrate containing not less than fifteen per cent (15%) of nitrogen, chiefly as sodium nitrate.

A **non-acid-forming fertilizer** is one that is not capable of increasing the residual acidity of the soil.

Peat is partly decayed vegetable matter of natural occurrence. It is composed chiefly of organic matter which contains some nitrogen of low activity.

Phosphate rock is a natural rock containing one or more calcium phosphate minerals of sufficient purity and quantity to permit its use, either directly or after concentration, in the manufacture of commercial products.

The term **phosphoric acid** designates phosphorus pentoxide (P_2O_5).

The term **potash** designates potassium oxide (K_2O).

Precipitated bone phosphate is a by-product from the manufacture of glue from bones and is obtained by neutralizing the hydrochloric acid solution of processed bone with calcium hydroxide. The phosphoric acid is chiefly present as dicalcium phosphate.

Precipitated phosphate is a product consisting mainly of dicalcium phosphate obtained by neutralizing with calcium hydroxide the acid solution of either phosphate rock or processed bone.

Primary fertilizer components are those at present generally recognized by law as necessary to be guaranteed in fertilizers, namely: nitrogen, phosphoric acid, and potash.

Process tankages are products made under steam pressure from crude inert nitrogenous materials, with or without the use of acids, for the purpose of increasing the activity of the nitrogen. These products shall be called "Process Tankages" with or without further qualification. The water-insoluble nitrogen in these products shall test at least fifty per cent (50%) active by the alkaline, or eighty per cent (80%) by the neutral permanganate method.

Products secured by heating calcium phosphate with alkali salts containing potash are non-acid phosphates with potash. They are **not** potassium phosphate.

Pulverized limestone (fine-ground limestone) is the product obtained by grinding either calcareous or dolomitic limestone so that all the material will pass a 20-mesh sieve and at least seventy-five per cent (75%) will pass a 100-mesh sieve.

Quick lime, burned lime, caustic lime, lump lime, unslaked lime. These designations shall apply to calcined materials, the major part of which is calcium oxide, in natural association with a lesser amount of magnesium oxide, and which is capable of slaking with water.

Secondary fertilizer components are those other than the "primary fertilizer components" that are essential to the proper growth of plants and that may be needed by some soils. Some of these components are calcium, magnesium, sulfur, manganese, copper, zinc, and boron.

Sheep manure — wool waste is the by-product from wool-carding establishments consisting chiefly of sheep manure, seeds, and wool fiber.

Soft phosphate with colloidal clay is a very finely divided low-analysis by-product from mining Florida rock phosphate by a hydraulic process in which the colloidal materials settle at points in artificial ponds and basins farthest from the washer, and are later removed after the natural evaporation of the water.

Sulfate of ammonia (commercial ammonium sulfate) is a commercial product composed chiefly of ammonium sulfate. It shall contain not less than twenty and five-tenths per cent (20.5%) of nitrogen.

Sulfate of potash-magnesia is a potash salt containing not less than twenty-five per cent (25%) of potash (K_2O), nor less than twenty-five per cent (25%) of sulfate of magnesia, and not more than two and one-half per cent (2.5%) of chlorine.

Sulfate of potash (commercial potassium sulfate) is a potash salt containing not less than forty-eight per cent (48%) of potash (K_2O) chiefly as sulfate, and not more than two and one-half per cent (2.5%) of chlorine.

Superphosphate is a commercial phosphate, the phosphoric acid (P_2O_5) content of which is due chiefly to mono-calcium phosphate. (The grade that shows the available phosphoric acid should always be used as a prefix to the name. Example: 16 per cent superphosphate.)

Tankage (without qualification) is the rendered, dried, and ground by-product, largely meat and bone from animals (slaughtered or that have died otherwise).

A unit of plant food is twenty (20) pounds, or one per cent (1%) of a ton.

Unleached wood ashes are ashes from burned unleached wood that have had no part of their plant food removed and that contain four per cent (4%) or more of water-soluble potash (K_2O).

Waste lime, by-product lime, is any industrial waste or by-product containing calcium or calcium and magnesium in forms that will neutralize acids. It may be designated by the prefixation of the name of the industry or process by which it is produced, *i.e.*, gas-house lime, tanners' lime, acetylene lime-waste, lime-kiln ashes, calcium silicate, etc.

Interpretations

Activity of water-insoluble nitrogen in mixed fertilizers. The alkaline and neutral permanganate methods distinguish between the better and the poorer sources of water-insoluble nitrogen, and do not show the percentage availability of the materials. The available nitrogen of any product can be measured only after carefully conducted vegetation experiments.

(*a*) The methods shall be used on mixed fertilizers containing water-insoluble nitrogen amounting to three-tenths of one per cent (0.3%) or more of the weight of the material. If a total nitrogen exceeds the minimum guaranty and is accompanied by a low activity of the insoluble nitrogen, the over-run shall be taken into consideration in determining the classification of the water-insoluble nitrogen.

(*b*) The water-insoluble nitrogen in mixed fertilizers showing an activity below fifty per cent (50%) by the alkaline method and also below eighty per cent (80%) by the neutral method shall be classed as inferior. This necessitates the use of both methods, also the provision as to over-run in (*a*), before classifying as inferior.

Amount of chlorine permissible in fertilizers in which the potash is claimed as sulfate. The **chlorine** in mixed fertilizers in which the potash is claimed as sulfate shall not exceed one-half of one per cent (0.5%) more than what is called for in the minimum potash content based on the definition of potash as formulated by the Committee. Calculate as follows: 0.05 times the percentage of potash found plus 0.5.

The analysis or grade of a fertilizer should be included with its brand name, and so used by the manufacturer on sacks and in printed literature and by the control official in his reports and publications.

Cyanamide and urea nitrogen is synthetic non-protein organic nitrogen.

A **fertilizer formula** shall express the quantity and grade of the crude stock materials used in making a fertilizer mixture. For example: 800 pounds of sixteen per cent superphosphate, 800 pounds of tankage (7.40 nitrogen and 9.15 total phosphoric acid), and 400 pounds of sulfate of potash-magnesia (twenty-six per cent (26%) potash).

Finely ground in the definition of basic phosphate slag shall refer to actual size of particles as determined by the use of standard sieves, as follows: seventy per cent (70%) or more shall pass a 100-, and ninety per cent (90%) or more shall pass a 50-mesh sieve.

The term **"lime"** shall not be used in the registration, labelling, or guaranteeing of fertilizers or fertilizing materials unless the lime is in a form or forms to neutralize soil acidity.

The weights appearing on packages of fertilizer, agricultural lime, and liming materials shall always mean **net weights.**

The **order of terms** in mixed fertilizers shall be nitrogen first, phosphoric acid second, and potash third.

When the name of a fertilizer material is used as a part of the brand name of a mixed fertilizer, as, for example, blood, bone, or fish, the nitrogen or phosphoric acid shall be derived from or supplied entirely by the material named. When the name of a fertilizer material is used as a brand or as part of a brand and the nitrogen or phosphoric acid is not supplied by the material named, the word "brand" shall follow the name of the materials. Example: "Fish Brand Fertilizer."

The **statement of guaranties** of mixed fertilizers shall be given in whole numbers.

As the terms **phosphoric acid** and **potash** are used universally in guaranteeing and in reporting the analyses of fertilizers, it is recommended that the same terms also be used in reporting and discussing the results of analyses of related materials.

DIRECTORY OF MANUFACTURERS WHO REGISTERED FERTILIZERS FOR SALE IN MASSACHUSETTS IN 1940

Acme Guano Co., 310 Marine Bank Bldg., Baltimore, Md.
Agro-Chem Laboratories, Inc., 1852 Georgia Ave., Toledo, Ohio
American Agricultural Chemical Co., North Weymouth, Mass.
American Cyanamid Co., 30 Rockefeller Plaza, New York, N. Y.
American Potash & Chemical Corporation, Trona, Cal.
Apothecaries Hall Co., Waterbury, Conn.
Archer-Daniels-Midland Co., Minneapolis, Minn.
Armour Fertilizer Works, 80 Eighth Ave., New York, N. Y.
Ashcraft-Wilkinson Co., Trust Company of Georgia Bldg., Atlanta, Ga.
Atkins & Durbrow, Inc., 165 John St., New York, N. Y.
Ernest J. Bantle, Glastonbury, Conn.
Barrett Co., 40 Rector St., New York, N. Y.
F. A. Bartlett Tree Expert Co., 60 Canal St., Stamford, Conn.
Belmont Gardens, 170 Brighton St., Belmont, Mass.
Berkshire Chemical Co., 92 Howard Ave., Bridgeport, Conn.
L. H. Brague, 52 Bartlett Ave., Pittsfield, Mass.
Joseph Breck & Sons Corporation, 85 State St., Boston, Mass.
Buell Fertilizer Co., Exeter, N. H.
Central Soya Co., Inc., Ft. Wayne, Ind.
Chilean Nitrate Sales Corporation, 120 Broadway, New York, N. Y.
Clay & Son, Ltd., Stratford, London, England
Collins Seed Service Co., 131 Beverly St., Boston, Mass.
Consolidated Chemical Industries, Inc., 630 Fifth Ave., New York, N. Y.
Consolidated Rendering Co., 178 Atlantic Ave., Boston, Mass.
Daedalus Farm, Scituate Center, Mass.
Davey Tree Expert Co., Kent, Ohio
Davison Chemical Corporation, Baltimore, Md.
E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.
Eastern States Farmers' Exchange, Springfield, Mass.
Ellis Associates, Inc., 92 Greenwood Ave., Montclair, N. J.

Thomas W. Emerson Co., 215 State St., Boston, Mass.
Excell Laboratories, 2625 Indiana Ave., Chicago, Ill.
Fertilizer Sales Corporation, 617 Concord Ave., Cambridge, Mass.
Florida Humus Co., Zellwood, Fla.
Foodndrink Fertilizer Co., 253 Portland St., Cambridge, Mass.
Ford Motor Co., 3674 Schaefer Road, Dearborn, Mich.
French Potash Co., Inc., 30 Rockefeller Plaza, New York, N. Y.
H. L. Frost & Higgins Co., Arlington, Mass.
Glidden Co., Soya Products Division, 5165 West Moffat St., Chicago, Ill.
Goulard & Olena, Inc., 140 Liberty St., New York, N. Y.
Thomas J. Grey Co., 16 South Market St., Boston, Mass.
Hartney-Amalia, Inc., 581 Boylston St., Boston, Mass.
Henderson & Herndon Tree Co., Inc., 9 Story Ave., Beverly, Mass.
Allen Hersom Co., 74 Howard Ave., New Bedford, Mass.
A. H. Hoffman, Inc., Landisville, Penn.
Humphreys-Godwin Co., Memphis, Tenn.
A. W. Hunt, Weston, Mass.
Hydroponic Chemical Co., Inc., 152 West 42nd St., New York, N. Y.
Hy-Trous Sales Company of New England, 17 Kilsythe Road, Arlington, Mass.
International Agricultural Corporation, Woburn, Mass.
J. W. Joynt, Lucknow, Ontario, Canada
Spencer Kellogg & Sons, Inc., 98 Delaware Ave., Buffalo, N. Y.
Kem Plant Food Corporation, 485 Madison Ave., New York, N. Y.
L. B. Lovitt & Co., 1004 Falls Bldg., Memphis, Tenn.
John D. Lyon, 17 Bartlett Ave., Belmont, Mass.
McClain Brothers Co., 263 Clark Bldg., Canton, Ohio
Mechling Bros. Chemicals, Division of General Chemical Co., 12 South 12th St., Philadelphia, Penn.
Miller Chemical & Fertilizer Corporation, 1000 South Caroline St., Baltimore, Md.
National Electro Chemical Co., 227 Canal St., Malden, Mass.
New England Toro Co., 1121 Washington St., West Newton, Mass.
New England Tree Expert Co., Inc., 153 Brighton Ave., Boston, Mass.
Norfolk Humus Co., Stoughton, Mass.
Norwood Brand Fertilizer Co., North Reading, Mass.
Old Deerfield Fertilizer Co., Inc., South Deerfield, Mass.
Olds & Whipple, Inc., 168 State St., Hartford, Conn.
F. G. Phillips Co., 37 Circuit Road, Dedham, Mass.
Plantabbs Co., Baltimore, Md.
Plantspur Products Co., Ridgefield, N. J.
Potash Company of America, Mercantile Trust Bldg., Baltimore, Md.
Premier Poultry Manure Division, North American Car Corporation, 327 South La Salle St., Chicago, Ill.
Pulverized Manure Co., 503 Exchange Bldg., Union Stock Yards, Chicago, Ill.
Ramshorn Mills, Inc., West Millbury, Mass.
Ra-Pid-Gro Corporation, Dansville, N. Y.
John Reardon & Sons Division of Wilson & Co., Inc., 51 Waverly St., Cambridge, Mass.
Rogers & Hubbard Co., Portland, Conn.
N. Roy & Son, South Attleboro, Mass.
Ruhm Phosphate & Chemical Co., Mt. Pleasant, Tenn.
Scarborough Testing Gardens, Inc., Scarborough, N. Y.
O. M. Scott & Sons Co., Marysville, Ohio
Sewerage Commission of the City of Milwaukee, P. O. Box 2079, Milwaukee, Wis.
M. L. Shoemaker Co., Division of Wilson & Co., Inc., Venango St. and Delaware Ave., Philadelphia, Penn.
Soil Builders, Inc., Dunnellon, Fla.
A. E. Staley Manufacturing Co., Decatur, Ill.
Standard Wholesale Phosphate & Acid Works, Inc., 1600 Mercantile Trust Bldg., Baltimore, Md.
Sutton & Sons, Ltd., Reading, England
Swift & Company Fertilizer Works, 910 Court Square Bldg. Baltimore, Md.
F. Sylvester & Son, 397 Procter Ave., Revere, Mass.
Synthetic Nitrogen Products Corporation, 285 Madison Ave., New York, N. Y.
Tennessee Corporation, Lockland, Ohio
Tobacco By-Products & Chemical Corporation, Inc., 1010 Columbia Bldg., Louisville, Ky.
Universal Chemical Co., 106 Ontario St., Lynn, Mass.
Virginia-Carolina Chemical Corporation, Carteret, N. J.
Walker-Gordon Laboratory Co., Inc., Plainsboro, N. J.
C. P. Washburn Co., Middleboro, Mass.
Winslow Nurseries, 1808 Great Plain Ave., Needham, Mass.
Thomas Wood & Sons, Inc., 12-14 Midland Ave., Montclair, N. J.
Woodard Bros., Greenfield, Mass.
Woodruff Fertilizer Works, Inc., Orange, Conn.

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AGRICULTURAL EXPERIMENT STATION

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Inspection of Agricultural Lime Products

By Philip H. Smith and J. W. Kuzmeski

This is the twenty-ninth report on the inspection of agricultural lime products in Massachusetts. It gives the composition of the various products which have been sold in the State during the year.

Massachusetts State College
Amherst, Mass.

INSPECTION OF AGRICULTURAL LIME PRODUCTS FOR THE SEASON OF 1940

By Philip H. Smith, Official Chemist
and
J. W. Kuzmeski, Senior Chemist [1]

Manufacturers and Brands

During 1940, 23 firms registered for sale in Massachusetts 49 brands of lime products, manufactured and sold for neutralizing acid soils, two brands of gypsum, and one brand of agricultural talc. The products are grouped as follows:

Hydrated or slaked lime	26
Pulverized and ground limestone	21
Oyster shell lime	1
Lime ashes	1
Total	49
Gypsum	2
Talc	1

The analytical results which appear in this bulletin represent officially drawn samples secured by the same sampling agents who drew the samples of commercial fertilizer which served for the inspection of that commodity; the samples therefore came from every section of the state and are, we believe, representative of the lime products sold in Massachusetts as soil amendments.

We were not successful in securing samples of the following brands:

Bluepoints Co., Inc., Water Street, East Providence, R. I.
Sealshipt Brand Oyster Shell Dust

Brewer & Co., Inc., 45 Arctic Street, Worcester, Mass.
Green Mountain Handy Hydrate
Lime Kiln Ashes
Producto Agricultural Lime

Eastern States Farmers' Exchange, Springfield, Mass.
Eastern States Land Lime

L. A. Howard, Proctorsville, Vt.
Howards Agricultural Talc

Rockland-Rockport Lime Co., Inc., Rockland, Maine
R-R Land Lime, Special High Magnesia

Solvay Process Co., Syracuse, N. Y.
Solvay Pulverized Limestone

Variations and Deficiencies Found in the Composition of Lime Products

Of the lime products effective in neutralizing soil acidity, about 71 per cent of those analyzed fully met the minimum guarantee; of the 20 ground limestone products, 8 showed deficiencies. Some of the deficiencies were not of a serious nature as the companion ingredient was present in sufficient excess to more than make up the full neutralizing value of the product as based on the stated guarantee. The same may be said of the hydrated lime products where 7 out of 22 brands, about 32 per cent, showed deficiencies. The tables of analyses will show the extent of variations from the guaranteed composition.

[1] Assisted by H. Robert DeRose, Albert F. Spelman, Leo V. Crowley and Francis J. Farren, Chemists; J. T. Howard, L. A. Graves, and C. L. Whiting, Sampling Agents; George E. Taylor, Laboratory Assistant, Cora B. Grover, Clerk.

Explanation of Tables of Analyses

Table I, "Percentage of total oxides as carbonates." The data furnished in this column are calculated from an actual determination of carbon dioxide (CO_2). Calcium or magnesium not in the form of carbonate is present either as hydrated lime (water- or air-slaked), as burned lime (caustic or unslaked), or as basic silicate. All of the products listed in this table have at some time been burned, and the percentage of oxides present as carbonates indicates to what extent the product has absorbed carbon dioxide from the air.

Tables II and III, "Carbonates of calcium and magnesium." The figures in this column are exclusive of the small amounts of calcium and magnesium combined as basic silicates; these are readily soluble in mineral acid solutions but obviously should not be classed as carbonates.

Under "Mechanical analysis" the figures represent in round numbers the percentage of product that would pass or be retained by the meshed sieves mentioned.

The limestone products have been published in two groups or grades (see tables II and III) according to fineness of grinding and to conform to definitions voted by the Association of Official Agricultural Chemists at their 1936 meeting.

Tables I, II, and III, "Neutralizing value expressed in terms of calcium oxide" represents the acid neutralizing value of both the magnesium and the calcium. The figures in the "per cent" column are obtained by a direct titration with standard acid. The "pounds in one ton" are secured by multiplying the figures in the "per cent" column by 20.

"Insoluble matter" represents material which is insoluble in dilute hydrochloric acid to which a few drops of nitric acid have been added.

Definitions and Interpretations Relating to Lime Products

The following definitions and interpretations have been adopted as official by vote of the Association of Official Agricultural Chemists of North America.

Definitions

Agricultural liming material is material whose calcium and magnesium content is capable of neutralizing soil acidity.

Air-slaked lime is a product composed of variant proportions of the oxide, hydroxide and carbonate of calcium, or of calcium and magnesium, and derived from exposure of quick lime.

Dolomite is a mineral composed chiefly of carbonate of magnesium and calcium in substantially unimolal (1–1.19) proportions.

Ground limestone (**coarse-ground limestone**) is the product obtained by grinding either calcareous or dolomitic limestone so that all the material will pass a 10-mesh sieve, and at least fifty per cent (50%) will pass a 100-mesh sieve.

Ground shells is the product obtained by grinding the shells of mollusks so that not less than fifty per cent (50%) shall pass a 100-mesh sieve. The product shall also carry the name of the mollusk from which said product is made.

Ground shell marl is the product obtained by grinding natural deposits of shell marl so that at least seventy-five per cent (75%) shall pass a 100-mesh sieve.

Gypsum, land plaster, or crude calcium sulfate are products consisting chiefly of calcium sulfate. They may contain twenty per cent (20%) of combined water. (They do not neutralize acid soils.)

High calcic products are materials of which ninety per cent (90%) or more of the calcium and magnesium content consists of calcium oxide.

High magnesic products are materials in which more than ten per cent (10%) of the total calcium and magnesium oxide consists of magnesium oxide.

Hydrated or slaked lime is a dry product consisting chiefly of the hydroxide of calcium and oxide-hydroxide of magnesium.

The word **lime** when applied to liming materials means either calcium oxide or calcium and magnesium oxides.

Pulverized limestone (**fine-ground limestone**) is the product obtained by grinding either calcareous or dolomitic limestone so that all the material will pass a 20-mesh sieve and at least seventy-five per cent (75%) will pass a 100-mesh sieve.

Secondary fertilizer components are those other than the "primary fertilizer components" that are essential to the proper growth of plants and that may be needed by some soils. Some of these components are calcium, magnesium, sulfur manganese, copper, zinc, and boron.

A **unit of plant food** is twenty (20) pounds, or one per cent (1%) of a ton.

Waste lime, by-product lime, is any industrial waste or by-product containing calcium or calcium and magnesium in forms that will neutralize acids. It may be designated by the prefixation of the name of the industry or process by which it is produced, *i.e.*, gas-house lime, tanners' lime, acetylene lime-waste, lime-kiln ashes, calcium silicate, etc.

Interpretations

The term **"lime"** shall not be used in the registration, labelling, or guaranteeing of fertilizers or fertilizing materials unless the lime is in a form or forms to neutralize soil acidity.

The weights appearing on packages of fertilizer, agricultural lime, and liming materials shall always mean **net weights.**

Table I. Hydrated or Slaked Lime

Name of Manufacturer and Brand.	Calcium Oxide (CaO).		Magnesium Oxide (MgO).		Percentage of Total Oxides as Carbonates.	Neutralizing Value Expressed in Terms of Calcium Oxide.		Insoluble Matter.
	Found.	Guaranteed.	Found.	Guaranteed.		Per Cent.	Pounds in One Ton.	
Brewer & Co., Inc., 45 Arctic St., Worcester, Mass.								
Snow Fluff Agricultural Hydrate	70.88	70.00	2.46	5.00	5.63	74.16	1,483	2.43
Sure Crop Agricultural Hydrated Lime	68.56	65.00	1.26	1.00	8.58	70.38	1,408	5.17
Eastern States Farmers' Exchange, Springfield, Mass.								
Eastern States Magnesian Hydrated Lime	47.52	47.00	33.10	31.00	5.85	92.80	1,856	1.16
Harris Lime Co., Saylesville, R. I.								
Harris Agricultural Hydrate	58.48	50.00	25.77	22.00	3.10	94.21	1,884	4.11
A. H. Hoffman, Inc., Landisville, Penn.								
Hoffman's Hydrated Lime	67.04	70.00	2.61	1.00	19.87	69.82	1,396	1.89
Hoosac Valley Lime Co., Inc., Adams, Mass.								
Adams Land Lime	63.84	60.00	1.80	.50	10.91	66.60	1,332	3.08
Hoosac Agricultural Hydrated Lime	72.28	65.00	1.65	.50	3.27	74.58	1,492	1.28
Kelley Island Lime & Transport Co., 1122 Leader Bldg., Cleveland, Ohio								
Tiger All-Purpose Hydrated Lime	47.04	47.12	32.54	34.14	4.98	91.70	1,834	.22
Lawrence Portland Cement Co., Thomaston, Maine								
Dragon "Mainrok" Land Lime	67.16	60.00	1.19	.20	20.23	68.70	1,374	1.95
Lee Lime Corporation, Lee, Mass.								
Lee Lime Corp. Agricultural Hydrated Lime	46.76	46.00	32.51	31.00	7.47	90.98	1,820	.89
Lee Lime Corp. Land Lime	39.08	35.00	27.42	25.00	45.26	76.26	1,525	.80
Limestone Products Corporation of America, Newton, N. J.								
"Lime Crest" Brand Calcite Hydrated Lime for Agricultural Use	70.68	64.00	3.04	1.00	4.67	74.86	1,497	.80
Clifford L. Miller, West Stockbridge, Mass.								
Monarque Agricultural Hydrated Lime	49.60	60.00	24.57	1.00	3.73	83.88	1,678	5.65

New England Lime Co., Adams, Mass.								
Nelco Agricultural Hydrated Lime (Adams)	73.40	70.00	1.12	.50	2.05	75.14	1,503	1.02
Nelco Agricultural Hydrated Lime (Canaan, Conn.)	46.88	47.00	32.08	31.00	4.37	90.70	1,814	.88
Nelco Land Lime (Canaan, Conn.)	42.20	35.00	28.46	25.00	24.62	80.18	1,604	1.67
Rockland-Rockport Lime Co., Inc., Rockland, Maine								
Rockland Agricultural Hydrate	55.20	45.00	21.05	23.00	4.51	83.56	1,671	2.58
R-R Land Lime, Grade C	65.08	60.00	4.39	.50	8.54	70.94	1,419	6.28
Sanilime	66.68	70.00	1.71	.20	24.23	68.28	1,366	.48
United States Gypsum Co., 300 West Adams St., Chicago, Ill.								
USG Agricultural Hydrated Lime	71.00	70.00	1.23	none	6.85	72.34	1,447	.91
USG Agricultural Land Lime	73.12	60.00	1.22	none	4.20	74.58	1,492	.93
USG Red Top Hydrated Lime	73.16	70.00	1.07	none	6.26	74.58	1,492	.35

Table II. Pulverized Limestone (Fine-Ground Limestone)

Name of Manufacturer and Brand.	Calcium Oxide (CaO).		Magnesium Oxide (MgO).		Carbonates of Calcium and Magnesium		Neutralizing Value Expressed in Terms of Calcium Oxide		Insoluble Matter	Mechanical Analysis (Per Cent)	
	Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.	Per Cent.	Pounds In One Ton.		Finer than 100-mesh	Coarser than 20-mesh
Harris Lime Co., Saylesville, R. I.											
Harris Agricultural Ground Limestone	33.50	30 00	18 10	20 00	96.99	95 37	58 57	1,171	2.70	79.15	none
Hoosac Marble Co., 82 Main St., North Adams, Mass.											
Ground Limestone	52 46	53 00	.85	.65	95 40	97 03	54 07	1,081	4.70	89.47	none
Hoosac Valley Lime Co., Inc., Adams, Mass.											
Hoosac Agricultural Limestone	53 03	51 50	.90	.50	96.52	90 00	50 28	1,006	.85	85.35	.10
Lawrence Portland Cement Co., Thomaston, Maine											
Dragon "Mainrok" Finely Pulverized Calcium Agricultural Limestone	49.03	50.00	1 40	.20	90.43	95 00	50 69	1,014	7 65	89 70	none
Lee Lime Corporation, Lee, Mass.											
Agricultural Tobey Pulverized Limestone	38.38	35 00	11 50	10 00	92.54	90 00	54 32	1,086	7.30	96.15	none
Limestone Products Corporation of America, Newton, N. J.											
"Lime Crest" Brand Calcite, Pulverized	48 38	42 00	3.60	2 00	93.87	90 00	53.36	1,067	5.60	90.48	.21
Clifford L. Miller, West Stockbridge, Mass.											
Monarque Agricultural Dolomite	29 74	30.00	16.36	17 00	87 04	88 00	52.00	1,040	12 74	75 12	.22
Monarque Agricultural Dolomite	28 15	30 00	16.50	17 00	84 75	88 00	51.03	1,021	14 94	75.19	.32
New England Lime Co., Adams, Mass.											
Nelco Agricultural Ground Limestone (Canaan, Conn.)	31.00	30 00	21 35	21 00	97.35	97 40	59 94	1,199	1.34	79 44	.27
Rockland-Rockport Lime Co., Inc., Rockland, Maine											
R-R Ground Limestone, Grade M	33 75	30 00	18 45	17 00	98.19	94 00	59 01	1,180	1 48	86.95	none
R-R Ground Limestone, Grade C	53 82	50 00	1 25	none	98 00	92 00	55 38	1,108	1 60	92.44	none

D. U. Smith & Bro., Ashley Falls, Mass.											
Ashley White Dolomite	30.40	30.00	21.71	21.00	97.33	98.00	59.42	1,188	1.03	79.43	none
United States Gypsum Co., 300 West Adams St., Chicago, Ill.											
USG Agricultural Limestone (Farnams, Mass.)	54.19	53.20	.95	.50	98.03	96.00	55.31	1,106	1.45	92.49	none
USG Agricultural Limestone (Falls Village, Conn.)	30.39	30.00	21.19	20.00	96.79	95.00	58.67	1,173	2.53	79.66	none
USG Agricultural Limestone (Falls Village, Conn.)	29.61	30.00	20.20	20.00	93.39	95.00	57.22	1,144	5.80	80.72	none

Table III. Ground Limestone (Coarse-Ground Limestone)

Name of Manufacturer and Brand.	Calcium Oxide (CaO).		Magnesium Oxide (MgO).		Carbonates of Calcium and Magnesium		Neutralizing Value Expressed in Terms of Calcium Oxide		Insoluble Matter	Mechanical Analysis (Per Cent)	
	Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.	Per Cent.	Pounds In One Ton.		Finer than 100-mesh	Coarser than 20-mesh
Bolton Lime Works, Bolton, Mass.											
Boltonite Pulverized Limestone	31.00	25.00	18.45	15.00	93.70	72.00	55.58	1,112	6.20	52.35	8.02
Conklin Limestone Co., Inc., Canaan, Conn.											
High Magnesium Agricultural Ground Limestone	29.00	30.00	20.05	21.00	92.80	90.00	56.61	1,132	6.73	41.11*a*	none
Eastern States Farmers' Exchange, Springfield, Mass.											
Eastern States Magnesian Limestone	30.75	29.00	21.90	20.00	97.75	93.50	60.35	1,207	.80	63.93	.38
Grangers Manufacturing Co., 53 State St., Boston, Mass.											
Grangers Agricultural Limestone	42.00	34.00	7.03	6.00	89.65	90.00	51.79	1,036	9.95	53.37	1.10
Lee Lime Corporation, Lee, Mass.											
Lee Lime Corp. Agricultural Pulverized Limestone	30.63	30.00	21.85	20.00	96.83	93.00	60.07	1,201	.78	67.13	2.42
Lee Lime Corp. Agricultural Pulverized Limestone	30.63	30.00	21.32	20.00	97.20	93.00	58.94	1,179	1.82	71.70	2.49
Massachusetts Lime Works, 20 James St., Medford, Mass.											
Indiana Agricultural Ground Limestone	53.10	53.61	.90	.58	96.64	95.00	54.25	1,085	2.50	48.73*a*	1.60
New England Lime Co., Adams, Mass.											
Neleo Agricultural Limestone (Adams)	53.44	53.50	1.05	.40	96.01	96.30	54.53	1,091	3.13	65.91	.72
D. U. Smith & Bro., Ashley Falls, Mass.											
Ashley White Dolomite	30.88	30.00	21.35	21.00	94.38	98.00	60.10	1,202	3.05	72.49	none

a This product contains a greater percentage of material coarser than 100-mesh than is allowed by the definition for coarse-ground limestone adopted by the Association of Official Agricultural Chemists.

Table IV. Gypsum or Land Plaster

Name of Manufacturer and Brand	Calcium Oxide (CaO).		Calcium Sulfate ($CaSO_4$).		Moisture
	Found.	Guaranteed.	Found.	Guaranteed.	
Connecticut Adamant Plaster Co., 10 River St., New Haven, Conn.					
Nova Scotia Brand Land Plaster	34.08	32.65	74.11	79.26	14.28
United States Gypsum Co., 300 West Adams St., Chicago, Ill.					
USG Ben Franklin Agricultural Gypsum	33.12	30.00	75.50	64.50	16.33
USG Ben Franklin Agricultural Gypsum	32.13	30.00	74.16	64.50	15.15

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MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

CONTROL SERIES BULLETIN NO. 107 NOVEMBER, 1940

Seed Inspection

By F. A. McLaughlin

This report, the thirteenth in seed control service, is a record of work delegated to the Massachusetts Agricultural Experiment Station during 1940, by authority of Chapter 94 as amended by Chapter 288 of the Acts of 1937 and Chapter 363 of the Acts of 1938.

MASSACHUSETTS STATE COLLEGE

AMHERST, MASS.

ANNOUNCEMENT

The Seed Testing Laboratory will allow ten units of work free of charge, during any calendar year, to any resident firm or citizen of Massachusetts.

Units are rated as follows:	Units
Purity analysis (red clover, timothy, etc.)	1
Purity analysis (bluegrass, orchard grass, etc.)	2
Purity analysis of a mixture of seeds (depending upon the number of kinds in the mixture)	4–10
Examination for noxious weeds (sample of 4 oz. or less)	2
Identification of seed or plant	1
Cleaning tobacco seed (4 oz. or less)	2
Germination test (4 x 100 seeds of any seed not chaffy or requiring purity analysis)	1
Germination test (soil, 2 x 100 seeds)	1
Germination test (chaffy grasses or seeds requiring purity analysis)	2

Fees for work in excess of the ten free units allowed to a citizen or resident firm of Massachusetts are as follows:

Germination test of all crop seeds except grasses	$0.25
Germination test of timothy	.25
Germination test of all other grasses	.50
Purity analysis of cereals	.50
Purity analysis of timothy	.75
Purity analysis of all other grasses	1.00
Purity analysis of all other crop seeds	.75
Purity analysis of mixtures of not more than 2 kinds of agricultural seeds	1.00
Purity analysis of special mixtures, including lawn grasses and pasture mixtures — a charge sufficient to cover the actual cost of working the sample, depending entirely upon the character of the sample. Minimum charge	1.25

In no case will the final report be rendered until all fees are paid.

The minimum weights of samples to be submitted for analysis are:

a. Two ounces of grass seed, white or alsike clover, or seeds not larger than these.
b. Five ounces of red or crimson clover, alfalfa, ryegrasses, millet, rape, or seeds of similar size.
c. One pound of cereal, vetches, or seeds of similar or larger size.

The minimum number of seed of any one kind to be submitted for a germination test is 400.

SEED INSPECTION

By F. A. McLaughlin[1]

MASSACHUSETTS VEGETABLE SEED STANDARDS FOR 1941

Section 261D of the Seed Law requires that a set of standards for germination of vegetable seeds be determined each year by the Director of the Massachusetts Agricultural Experiment Station and approved by the Commissioner of Agriculture. The following set of standards for 1941 has been so determined and approved:

KIND OF SEED	GERMINATION STANDARD %	KIND OF SEED	GERMINATION STANDARD %
Artichoke	60	Leek	60
Asparagus (including hard seed)	70	Lettuce	80
Beans, except Limas	80	Melons:	
Beans, Limas	70	Muskmelon	75
Beets	65	Watermelon	70
Broccoli	75	Mustard	75
Brussels Sprouts	70	Okra	50
Cabbage	75	Onions	70
Carrot	55	Parsley	60
Cauliflower	75	Parsnip	60
Celeriac	55	Peas	80
Celery	55	Peppers	55
Chard, Swiss	65	Pumpkin	75
Chicory	65	Radish	75
Citron	65	Rhubarb	60
Collards	80	Rutabaga	75
Corn, Sweet	75	Salsify	75
*Cress, Garden	40	Sorrel	60
Cress, Water	25	Spinach:	
Cucumber	80	Common	60
Dandelion	45	New Zealand	40
Egg Plant	60	Squash	75
Endive	70	Tomato	75
Fetticus (Corn Salad)	70	Tomato, Husk	50
Kale	75	Turnip	80
Kohlrabi	75		

*Garden Cress (*Lepidium sativum*) is also called Pepper Grass and Curled Cress. Should not be confused with Upland Cress or Spring Cress (*Campe verna*) for which no standard has been adopted.

The above set of standards is identical with that for 1939 and corresponds with the one adopted by the United States Department of Agriculture for administration of the Federal Seed Act.

In the enforcement of the law, no tolerances will be allowed below the minimum standards adopted.

[1] Assisted by Miss Jessie L. Anderson, Technical Assistant, and Miss Ennice Richardson, Laboratory Assistant from March to September, 1940.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS

From December 1, 1939, to November 1, 1940, the Seed Laboratory received and worked 2854 samples of seed, of which 1055 were collected by the State Department of Agriculture and 1799 were sent in by seedsmen, farmers, and various state institutions. An additional lot of 194 samples of flower seeds, for field tests only, was also received from the State Commissioner of Agriculture.

Classification of these samples with the total number of laboratory tests involved is shown in the following summary. It will be noted that the total number of tests required for the 2854 samples was 4046; 862 for purity and 3184 for germination.

Number of Samples		NUMBER OF TESTS Purity	Germination
713	Field Crops for Purity and Germination	713	713
5	Field Crops for Purity Only	5	—
158	Field Crops for Germination Only	—	158
103	Lawn and other types of Mixtures for Purity	103	—
	Germinations involving 440 ingredients	—	440
41	Lawn Mixtures for Purity Only	41	—
13	Lawn Mixtures for Germination Only, Germination involving 52 ingredients	—	52
1527	Vegetables for Germination Only	—	1527
43	Herbs for Germination Only	—	43
98	Flower Seeds for Germination Only	—	98
147	Tobacco Seeds for Germination Only	—	147
6	Tree Seeds for Germination Only	—	6
2854	Totals	862	3184

Field tests to determine trueness to type were conducted in cooperation with the Departments of Olericulture, Floriculture, and Agronomy, which tested respectively 253 samples of Vegetable seeds, 194 samples of Flower seeds, and 123 samples of Corn. Thirty-one samples of Oats and 35 samples of Red Clover, which were received too late for field tests this season, will be tested during the season of 1941. Results of the field tests are shown on Pages 85-104.

The Seed Laboratory cleaned 2 lots of Onion seed and 100 lots of Tobacco seed for Connecticut Valley farmers. More Tobacco seed was cleaned this season than for any year since the Seed Laboratory offered this service. The gross weight of the 100 lots of seed received amounted to 156.7 pounds with a net weight of cleaned seed 121.5 pounds.

Explanation of Tables

In these tables the seeds are listed in alphabetical order by groups, each group containing only those seeds, the sale of which is regulated by a definite section of the Massachusetts Seed Law. Section 261-A of the Acts and Resolves of 1937 and 1938, Chapters 288 and 363, defines the group from Alfalfa to Wheat, inclusive; Section 261-B, Mixtures; Section 261-C, Special Mixtures; and Section 261-D, Vegetables.

The number preceding each analysis is for identification and reference. The line to the right of the letter "L" gives information copied from the label; that to the right of "F" what was found in the laboratory analysis.

Various symbols have been used to call attention to violations and irregularities and with certain tables a column is devoted to "Notes." Where symbols occur an explanation is given in footnotes at bottom of the page.

All lots of seed included in this report were tested according to the Rules for Seed Testing adopted by the Association of Official Seed Analysts.

"Tolerance" is applied to both purity and germination, except for vegetable seed found below the minimum germination standards adopted, in which instance no tolerance is allowed. "Germination Tolerance" has been applied between a given germination and the result of the germination test as follows:

GIVEN GERMINATION (PERCENT)	TOLERANCE (PERCENT)
96 or over	5
90 or over, but less than 96	6
80 or over, but less than 90	7
70 or over, but less than 80	8
60 or over, but less than 70	9
Less than 60	10

The tolerance for percentage of pure seed, weed seeds, other crop seeds and inert matter is that used in the enforcement of the Federal Seed Act, but not as yet adopted by the Association of Official Seed Analysts.

In the determination of the tolerance for the percentage of the distinguishable kind, type, or variety (pure seed), weed seeds, other crop seeds, and inert matter, the sample shall be first considered as made up of two parts: (a) The percentage of the component (pure seed, weed seed, crop seed or inert matter as the case may be) being considered, and (b) the difference between that percentage and 100. The number represented by (a) is then multiplied by the number represented by (b) and the product is divided by 100. The resulting number is then multiplied by 0.2 (2/10) and the resulting product added to 0.2 or 0.6 as indicated in the following formulae:

$$\text{Pure seed tolerance} = 0.6 + \left\{ 0.2 \times \frac{a \times b}{100} \right\}$$

$$\text{Weed seeds, other crop seeds, and inert matter tolerance} = 0.2 + \left\{ 0.2 \times \frac{a \times b}{100} \right\}$$

For Poa spp., Agrostis spp., Festuca spp., bromegrass, crested wheatgrass, orchard grass, velvet grass, tall oatgrass, meadow foxtail, sweet vernalgrass, Rhodes grass, Dallis grass, carpet grass, and Bermuda grass, and mixtures containing these seeds singly or combined in excess of 50 percent, an additional tolerance shall be allowed. This is to be obtained by adding to the regular tolerance mentioned above the product obtained by multiplying the regular tolerance by the lesser of "a" and "b" divided by 100.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer when Other than Wholesale Distributor, and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test	Notes	Noxious Weed Seeds per Ounce
	ALFALFA									
	THE BELT SEED CO., Syracuse, N. Y.									
1065	Grimm, No. 469	L.	99.16	0.26	0.58	—	58.50–28	1/1940		
	Carr Hardware Co., Pittsfield	F.	99.20	0.12	0.66	0.02	74–20	8/1940		
	JOSEPH BRECK & SONS, Boston, Mass.									
164	Grimm, No. 7280	L.	99.00	0.20	0.40	0.40	84–11	1/1940		
		F.	99.62	0.07	0.09	0.22	71–24†	8/1940		
	ARTHUR R. CONE, Buffalo, N. Y.									
865	Grimm, No. 28–238	L.	99.20	0.14	0.16	0.50	85–7	2/1940		
	Farmers Feed & Supply Co., Amesbury	F.	99.15	0.14	0.14	0.57	69–24†	8/1940		
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.									
1010	Grimm, No. 948	L.	99.50	0.15	0.35	Trace	60–30	12/1939		
	Essex County Cooperative Farming Assoc., Topsfield	F.	99.74	0.10	0.14	0.02	76–20	8/1940		
	THOMAS W. EMERSON CO., Boston, Mass.									
170	Grimm, No. A L-104	L.	99.52	0.04	0.31	0.13	80–14	12/1938		
		F.	99.58	0.04	0.22	0.16	85–11	8/1940		
	THE STANFORD SEED CO., Buffalo, N. Y.									
738	Grimm, No. 4260	L.	99.74	0.06	0.20	—	85–10	3/1940		
	The Cutler Grain Co., Framingham	F.	99.66	0.10	0.09	0.15	83–7	8/1940		
947	Variegated, No. 5464	L.	99.00	0.08	0.32	0.60	76–16	3/1940		
	C. J. Howland, North Brookfield	F.	98.78	0.19	0.29	0.74	69–29	8/1940	(C)	
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.									
691	Affidavit Grimm, No. 2283	L.	99.02	0.21	0.05	0.72	85–5	2/1940		
	F. H. Sargent & Son, Brockton	F.	98.91	0.33	0.39	0.37	88–7	9/1940	(a)	17 English Plantain
855	Affidavit Grimm, No. 2287	L.	99.25	0.06	0.01	0.68	87–4	1/1940		
	Herman F. Davis, Merrimac	F.	99.24	0.17	0.24	0.35	92–1	8/1940		
	WHOLESALER UNKNOWN									
532	Alfalfa, Lot No. 417	L.	*	*	—	—	*	*/*		
	Franklin Hardware Co., North Attleboro	F.	99.50	0.02	0.17	0.31	89–3	8/1940		

BARLEY

	BARBER & BENNETT, INC., Albany, N. Y.									
1074	Alpha 2 Row, No. 85	L.	99.00	0.05	0.75	0.20	95.00	1/1940		
	Pittsfield Grain Co., Pittsfield	F.	98.82	—	1.10	0.08	93.00	7/1940		
	NEW YORK SEED IMPROVEMENT COOP. ASSOC., INC., Ithaca, N. Y.									
1075	Wisconsin, No. 38	L.	99.97	Trace	0.03	—	95.00	12/1939		
	Pittsfield Grain Co., Pittsfield	F.	99.98	—	0.01	0.01	98.00	7/1940		
	WM. G. SCARLETT & CO., Baltimore, Md.									
690	Seed Barley, No. 18219	L.	98.00	0.50	—	—	90.00	2/1939	**	
	F. H. Sargent & Son, Brockton	F.	99.40	0.05	0.08	0.47	96.00	8/1940	(a)	3 Quack Grass
	ST. ALBANS GRAIN CO., St. Albans, Vt.									
588	Fancy Six Rowed	L.	95.89	1.94	0.52	1.65	95.00	3/1940	**	
	H. K. Webster Co., Lawrence	F.	97.02	1.14	0.30	1.54	94.00	8/1940		
1096	Trebi Six Row, No. 1	L.	97.50	0.30	0.20	2.00	92.00	4/1940		
	Cunningham Grain Co., Malden	F.	98.92	0.42	0.12	0.54	99.00	8/1940		
	THE STANFORD SEED CO., Buffalo, N. Y.									
1077	Wisconsin #38, 6 Row, No. 7396	L.	99.43	0.05	0.49	0.03	95.00	1/1940		
	Pittsfield Grain Co., Pittsfield	F.	99.64	—	0.30	0.06	96.00	8/1940		
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.									
660	Alpha 2 Row, No. 8345	L.	99.84	0.03	0.03	—	93.00	12/1939		
	Pierce Hardware Co., Taunton	F.	99.67	—	0.20	0.13	97.00	8/1940		

BENT GRASS

	THE PHILADELPHIA SEED CO., Philadelphia, Pa.									
689	Astoria Colonial, No. II-320	L.	98.30	0.28	1.50	—	90.00	8/1939		
	F. H. Sargent & Son, Brockton	F.	98.49	0.06	1.41	0.04	94.00	7/1940		

BLUEGRASS

	THE BELT SEED CO., Syracuse, N. Y.									
1063	Kentucky, No. 1127	L.	87.88	0.45	11.63	0.04	86.00	1/1940		
	Carr Hardware Co., Pittsfield	F.	90.05	0.28	9.58	0.09	83.00	6/1940		

* Information required by law not given.
† Indicates purity below, germination below, or excessive weed seed, depending upon column in which it is found.
(C) Small percentage of purple stained seed, indicating Canadian origin.
(a) Noxious weeds not declared but found excessive.
** Variety required by law, but not stated.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer when Other than Wholesale Distributor, and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test	Notes	Noxious Weed Seeds per Ounce
	BLUEGRASS—Concluded									
	ARTHUR R. CONE, Buffalo, N. Y.									
1107	Kentucky, No. 34–69	L.	83.81	0.10	16.09	—	88.00	2/1940		
	Sunshine Feed Stores, Ayer	F.	84.05	0.19	15.76	—	87.00	6/1940		
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.									
1003	Kentucky, No. 991	L.	88.50	0.40	11.00	0.10	75.00	1/1940		
	Essex County Cooperative Farming Assoc., Topsfield	F.	89.66	0.19	10.05	0.10	81.00	6/1940		
	THOMAS W. EMERSON CO., Boston, Mass.									
173	Kentucky, No. 29	L.	85.00	0.42	14.38	0.20	80.00	*/*		
		F.	87.84	0.59	11.37	0.20	63.00†	4/1940	(a)	17 English Plantain
174	Kentucky, No 32101	L.	96.10	0.20	3.70	—	85.00	4/1939		
		F.	95.20	0.28	4.49	0.03	89.00	4/1940		
	JOHN D. LYON, Belmont, Mass.									
1125	Kentucky	L.	87.94	0.28	11.69	0.09	84.00	2/1940		
	Fitchburg Hardware Co., Fitchburg	F.	87.45	0.29	12.26	—	86.00	5/1940		
	WM. G. SCARLETT & CO., Baltimore, Md.									
598	Kentucky, No. 6116	L.	80.00	0.80	19.00	0.20	70.00	12/1939		
	C. P. Washburn Co., Middleboro	F.	80.88	0.26	18.68	0.18	72.00	5/1940		
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.									
1122	Kentucky, No. 3670	L.	85.49	0.19	—	—	85.00	4/1938		
	Farm Service Co., Ayer	F.	83.55	0.12	16.27	0.06	81.00	6/1940		
1136	Kentucky, No. 3707	L.	86.30	0.90	12.30	0.30	81.00	2/1940		
	United Cooperative Farmers, Inc., Fitchburg	F.	85.34	0.87	13.51	0.28	77.00	6/1940		
	F. H. WOODRUFF & SONS, Milford, Conn.									
1056	Kentucky, No. G–57–206	L.	97.66	0.10	2.14	0.10	80.00	1/1940		
	Frank Howard, Inc., Pittsfield	F.	94.29†	0.04	5.29	0.38	88.00	5/1940		
	BUCKWHEAT									
	LARROWE BUCKWHEAT & FLOUR CORP., Cohocton, N. Y.									
1153	Japanese	L.	99.82	—	—	—	92.00	*/*		
	Frank Howard, Inc., Pittsfield	F.	99.91	—	0.02	0.07	97.00	8/1940		

	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.									
853	Japanese, No. 8251	L.	99.92	0.02	0.04	0.02	95.00	1/1940		
	Herman F. Davis, Merrimac	F.	99.95	—	0.05	—	96.00	8/1940		
	ALSIKE CLOVER									
	THE BELT SEED CO., Baltimore, Md.									
1169	Alsike, No. 852	L.	99.25	0.15	0.60	—	85–7	3/1940		
	Carr Hardware Co., Pittsfield	F.	98.60	0.05	0.19	1.16	84–13	8/1940		
	JOSEPH BRECK & SONS, Boston, Mass.									
157	Alsike, No. 7632	L.	98.50	0.55	0.25	0.70	74–19	1/1940		
		F.	98.35	0.37	0.41	0.87	84–12	8/1940		
	ARTHUR R. CONE, Buffalo, N. Y.									
721	Arco, No. 25–229	L.	98.82	0.28	0.30	0.60	86–7	2/1940		
	George A. Fair, Holliston	F.	95.39†	1.04	2.35	1.22	81–16	8/1940	(a)	17 English Plantain
	ALBERT DICKINSON CO., Chicago, Ill.									
681	Alsike, No. 21614	L.	95.90	0.65	0.55	2.90	86–10	1/1940		
	Eastern Grain Co., Bridgewater	F.	96.12	0.59	0.27	3.02	87–7	8/1940		
	DURYEA SEED CO., INC., New York, N. Y.									
560	Alsike, No. 2.5401	L.	97.00	6.30	—	—	80–10	1/1939		
	W. K. Gilmore & Sons, Norfolk	F.	99.33	0.29	0.13	0.25	91–4	8/1940	(a)	22 English Plantain
	THOMAS W. EMERSON CO., Boston, Mass.									
887	Alsike, No. 55	L.	99.12	0.10	0.64	0.14	78–14	1/1940		
	Palm Grain Co., Lowell	F.	99.06	—	0.74	0.20	74–24	8/1940		
	HENRY HIRSCH & SONS, INC., Toledo, Ohio									
347	Fancy Alsike, No. 3924	L.	99.13	0.08	0.40	0.39	82–12	2/1940		
	Farm Service Co., Middleboro	F.	99.06	0.36	0.31	0.27	88–8	8/1940	(a)	12 English Plantain
742	Alsike, No. 3936	L.	99.08	0.28	0.23	0.41	82–10	2/1940		
	Farm Service Co., Framingham	F.	98.58	0.32	0.69	0.41	79–18	7/1940		
	THE HOLBROOK GROCERY CO., Keene, N. H.									
1111	Alsike	L.	98.00	0.20	—	—	93.00	3/1939		
	Conant & Co., Littleton	F.	98.51	0.10	0.16	1.23	87–12	8/1940		
	D. LANDRETH SEED CO., Bristol, Pa.									
783	Alsike, No. 532	L.	98.71	0.29	0.48	0.52	88.75–9	1/1940		
	United Cooperative Society, Maynard	F.	98.63	0.51	0.22	0.64	89–11	8/1940		

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† Indicates purity below, germination below, or excessive weed seed, depending upon column in which it is found.
(a) Noxious weeds not declared but found excessive.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer when Other than Wholesale Distributor, and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test	Notes	Noxious Weed Seeds per Ounce
	ALSIKE CLOVER—Concluded									
	JOHN D. LYON, Belmont, Mass.									
668	Alsike, No. 4003	L.	97.12	0.58	0.30	2.00	80–12	3/1940		
	Mackenzie & Winslow, Inc., Fall River	F.	97.57	0.55	0.42	1.46	91–7	8/1940		
	WM. G. SCARLETT & CO., Baltimore, Md.									
594	Alsike, No. 19904	L.	97.00	0.75	0.60	1.65	84–6	1/1940		88 English Plantain and 1 Canada Thistle
	C. P. Washburn Co., Middleboro	F.	97.82	0.63	0.28	1.27	92–5	8/1940		61 English Plantain
758	Alsike, No. 20064	L.	96.20	1.75	0.30	1.75	80–10	2/1940		92 English Plantain and 1 Wild Carrot
	Farmers Cooperative Exchange, Framingham	F.	96.09	1.74	0.24	1.93	87–11	8/1940		64 English Plantain
	THE STANFORD SEED CO., Buffalo, N. Y.									
643	Alsike, No. 5360	L.	97.85	1.40	0.40	0.35	75–19	3/1940		
	W. N. Potter Grain Stores, Inc., Hadley	F.	98.17	0.96	0.32	0.55	86–12	8/1940		
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.									
655	Pan American, No. 1573	L.	98.83	0.50	0.15	0.52	90–6	1/1940		
	The Borden Grain Co., Taunton	F.	98.47	0.76	0.24	0.53	87–11	8/1940		
	CRIMSON CLOVER									
	JOSEPH BRECK & SONS, Boston, Mass.									
162	Crimson	L.	98.00	0.75	1.25	—	87.00	4/1939		
		F.	97.91	0.31	1.19	0.59	85–2	8/1940	(a)	19 Brassica sp.
	LADINO CLOVER									
	JOSEPH BRECK & SONS, Boston, Mass.									
156	Ladino Clover, No. 8882–400	L.	97.80	1.30	0.90	—	92–1.50	*/*		
		F.	98.32	1.00	0.68	—	94–1	8/1940		
	THE CRAVER DICKINSON CO., Buffalo, N. Y									
686	Scarified Ladino Clover, No. 26 x 56	L.	98.10	0.35	0.20	1.35	92–4	2/1940		
	Eastern Grain Co., Bridgewater	F.	98.64	0.20	0.36	0.80	94–5	8/1940	(a)	11 English Plantain

	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.									
940	Ladino, No. 6132	L.	98.77	0.13	0.75	0.35	60–30	2/1940		
	A. E. Wordell, New Bedford	F.	98.76	0.19	0.43	0.62	72–25	8/1940		
	RED CLOVER									
	THE BELT SEED CO., Syracuse, N. Y.									
1071	Red Clover	L.	98.00	0.75	—	—	90.00	1/1939		
	Carr Hardware Co., Pittsfield	F.	98.89	0.12	0.81	0.18	87–1	8/1940	(a)	21 English Plantain
	JOSEPH BRECK & SONS, Boston, Mass.									
159	Red Medium, Domestic, No. 7577	L.	98.50	0.35	1.00	0.15	87–7	12/1939		
		F.	99.35	0.22	0.15	0.28	91–4	8/1940	(a)	12 English Plantain
160	Domestic Mammoth Red, No. 7521	L.	99.25	0.10	0.35	0.30	88–5	12/1939		
		F.	99.40	0.14	0.19	0.27	90–3	8/1940	(a)	9 English Plantain 2 Dodder
	COMSTOCK, FERRE & CO., Wethersfield, Conn.									
761	Domestic Medium Red, No. 663	L.	99.25	0.10	—	—	90–4	1/1937		
	Farmers' Cooperative Exchange, Framingham	F.	99.32	0.16	0.28	0.24	85–1	7/1940	(C)	
	ARTHUR R. CONE, Buffalo, N. Y.									
981	Medium Red, No. 15–293	L.	99.60	0.11	0.07	—	88–7	2/1940		
	Farm Grain Store, Palmer	F.	99.68	0.02	0.04	0.26	93–6	8/1940		
	ALBERT DICKINSON CO., Chicago, Ill.									
680	Medium Red. No. 24408	L.	97.88	1.34	0.08	0.70	87–8	1/1940		
	Eastern Grain Co., Bridgewater	F.	98.09	1.25	0.12	0.54	92–4	8/1940		
961	Medium Red, No. 24510–11	L.	99.38	0.10	0.22	0.33	83–11	3/1940		
	Community Feed Stores, South Deerfield	F.	99.49	0.13	0.09	0.29	89–5	8/1940		
	DURYEA SEED CO., INC., New York, N. Y.									
933	Red Clover, No. 1262	L.	99.50	0.14	0.04	0.32	77–18	10/1939		
	Horvitz Grain Co., New Bedford	F.	98.88	0.57†	0.11	0.44	90–7	8/1940	(a)	80 English Plantain
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.									
1005	Medium Red Clover, No. 958	L.	99.20	0.25	0.20	0.35	70–25	12/1939		
	Essex County Cooperative Farming Assoc., Topsfield	F.	99.06	0.16	0.33	0.45	82–17	8/1940		
	THOMAS W. EMERSON CO., Boston, Mass.									
171	Medium Red Clover, No. 4355	L.	99.28	0.30	0.16	0.26	83–10	11/1939		
		F.	99.21	0.15	0.07	0.57	88–80	8/1940		

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(C) Small percentage of purple stained seed, indicating Canadian origin.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer when Other than Wholesale Distributor, and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test	Notes	Noxious Weed Seeds per Ounce
	RED CLOVER—Continued									
	THOMAS W. EMERSON CO—Continued									
175	Red Mammoth Clover, No. 2706	L.	99.16	0.21	—	—	86–10	2/1939		
		F.	99.12	0.26	0.19	0.43	93–4	8/1940	(a)	15 English Plantain
507	Red Clover	L.	99.00	0.40	—	—	92.00	*/1939		
	F. A. Fales & Co., Norwood	F.	98.87	0.19	0.32	0.62	86–1	7/1940	(a, E)	10 English Plantain and 2 Wild Mustard
886	Red Clover, No. 47	L.	99.12	0.10	0.64	—	94.00	12/1939		
	Palm Grain Co., Lowell	F.	98.56	0.30	0.43	0.71	80–1†	7/1940	(a, E)	7 English Plantain and 3 Wild Mustard
	JOSEPH HARRIS SEED CO., Rochester, N. Y.									
366	Medium Red Clover, No. 1837	L.	99.52	0.10	0.14	0.34	87–5	1/1940		
	Joseph Harris Seed Co., Cambridge	F.	99.34	0.10	0.28	0.28	90–5	8/1940	(a)	8 English Plantain
	CHARLES C. HART SEED CO., Wethersfield, Conn.									
1186	Red Clover, No. 216	L.	99.00	0.25	0.10	0.65	80.00	3/1940		
	Dresser Hull Co., Lee	F.	99.02	0.43	0.09	0.46	93–5	8/1940	(a)	27 English Plantain
	HENRY HIRSCH & SONS, INC., Toledo, Ohio									
348	Medium Red Clover, No. 2422	L.	99.32	0.23	0.03	0.42	85–10	2/1940		
	Farm Service Co., Middleboro	F.	99.53	0.15	0.09	0.23	93–4	8/1940		
789	Medium Red (Fancy), No. 2586	L.	99.25	0.28	0.07	0.40	86–9	2/1940		
	Farm Service Co., Hudson	F.	99.43	0.31	0.04	0.22	94–2	8/1940	(a)	24 English Plantain
	D. LANDRETH SEED CO., Bristol, Pa.									
781	Medium Red, No. 162	L.	99.76	0.04	0.12	0.08	87.00	1/1940		
	United Cooperative Society, Maynard	F.	99.78	0.04	0.10	0.08	97–1	8/1940		
	JOHN D. LYON, Belmont, Mass.									
1124	Medium Red, No. 12602	L.	99.18	0.38	0.02	0.42	85–9	2/1940		
	Fitchburg Hardware Co., Fitchburg	F.	99.26	0.38	0.08	0.28	97–2	8/1940		
	WM. G. SCARLETT & CO., Baltimore, Md.									
530	U. S. Red, No. 16980	L.	97.00	2.00	—	0.50	80–10	4/1938	(c)	
	Franklin Hardware Co., North Attleboro	F.	96.06	2.66	0.45	0.83	70–4†	8/1940	(a)	705 English Plantain and 1 Dodder

595	Michigan Red, No. 5965	L.	98.85	0.75	0.38	0.02	80–10	10/1939		95 English Plantain and 12 Wild Carrot
	C. P. Washburn Co., Middleboro	F.	99.33	0.51	0.14	0.02	84–11	8/1940		91 English Plantain and 1 Canada Thistle
757	Indiana Red, No. 5045	L.	99.25	0.30	0.35	0.10	90.00	1/1940		24 English Plantain and 1 Dodder
	Farmers' Cooperative Exchange, Fitchburg	F.	99.05	0.47	0.19	0.29	93–3	8/1940		24 English Plantain
802	U. S. Red, No. 18633	L.	99.00	0.30	—	—	80–10	4/1939		
	C. P. Washburn Co., Falmouth	F.	99.27	0.12	0.53	0.08	94–2	7/1940		
	THE STANFORD SEED CO., Buffalo, N. Y.									
644	Medium Red, No. 4813	L.	99.25	0.30	0.26	0.19	95–3	3/1940		22 English Plantain
	W. N. Potter Grain Stores, Inc., Hadley	F.	99.54	0.28	0.08	0.10	94–4	8/1940		30 English Plantain
704	Medium Red, No. 2533	L.	99.00	0.26	0.10	0.64	78–13	3/1940		
	Milford Grain Co., Milford	F.	98.96	0.30	0.08	0.66	82–17	8/1940		
950	Medium Red, No. 4598	L.	99.00	0.34	0.10	0.56	79–12	3/1940		
	C. J. Howland, North Brookfield	F.	99.28	0.15	0.19	0.38	85–8	8/1940		
951	Red Clover, No. 4906	L.	99.10	0.22	—	—	92–4	4/1939		
	C. J. Howland, North Brookfield	F.	99.07	0.29	0.37	0.27	92–3	8/1940		
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.									
587	Pan American Medium Red, No. 5938	L.	99.31	0.37	0.11	0.21	91.00	2/1940		
	H. K. Webster Co., Lawrence	F.	99.36	0.38	0.14	0.12	91–6	8/1940		
801	Pan American Domestic Medium, No. 5869	L.	99.51	0.13	—	—	87–8	2/1939		
	Buzzards Bay Grain Co., Buzzards Bay	F.	99.35	0.14	0.31	0.20	51–1†	7/1940	(a, E)	12 English Plantain
1088	Pan American Medium, No. 5933	L.	99.05	0.44	0.31	0.20	87–7	2/1940		
	Checkerboard Feed Store, Amherst	F.	99.30	0.50	0.07	0.13	90–4	8/1940	(a)	14 English Plantain
	F. H. WOODRUFF & SONS, Milford, Conn.									
580	Medium Red	L.	99.00	0.20	0.44	0.36	83.50–14.50	1/1940		
	Treat Hardware Corp., Lawrence	F.	99.12	0.28	0.36	0.24	86–10	8/1940		
1054	Mammoth Red, No. G-87–206	L.	99.00	0.20	0.44	0.36	87–10.50	*/*		
	Frank Howard, Inc., Pittsfield	F.	99.01	0.24	0.36	0.39	86–11	8/1940		

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* Information required by law not given.
(E) Small percentage of green stained seed, indicating Northern European origin.
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(c) Wholesaler claims this seed not sold by him, at least not during the current year; calls attention to date of test.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer when Other than Wholesale Distributor, and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test	Notes	Noxious Weed Seeds per Ounce
	RED CLOVER—Concluded									
	F. H. WOODRUFF & SONS—Continued									
1055	Medium Red, No. G-87-25	L.	99.44	0.28	0.04	0.24	*	1/1940		45 English Plantain
	Frank Howard, Inc., Pittsfield	F.	99.22	0.21	0.20	0.37	90-7	8/1940		32 English Plantain
	WHOLESALER UNKNOWN									
1027	Medium Red, No. 4813	L.	99.25	0.30	0.26	0.19	95-3	3/1940		22 English Plantain
	W. N. Potter Grain Stores, Inc., Florence	F.	94.25†	3.43†	1.00	1.32	66.00†	8/1940	(b)	125 English Plantain
796	Medium Red, No. 7161 (Michigan grown)	L.	99.25	0.30	0.13	0.32	94-5	3/1940		
	City Grain Co., Marlboro	F.	99.55	0.08	0.14	0.23	93.00	7/1940	(E)	
	SWEET CLOVER									
	ARTHUR R. CONE, Buffalo, N. Y.									
1109	Sweet Clover No. 12	L.	99.25	0.28	—	—	80-5	3/1940	**	
	Sunshine Feed Stores, Ayer	F.	98.88WB .18YB	0.09	0.82	0.03	76-7	8/1940		
	Total Melilotus spp.		99.06							
	THE CRAVER DICKINSON CO., Buffalo, N. Y.									
1073	Yellow Blos. Sweet Clover No. 25-25	L.	99.52	0.18	0.16	0.14	66-25	11/1939		
	Pittsfield Grain Co., Pittsfield	F.	99.68	0.16	0.12	0.02	74-20	8/1940		
	DURYEA SEED CO., INC., New York, N. Y.									
993	Sweet Clover, No. 21471	L.	99.00	0.10	—	—	83-10	3/1938	**	
	Farm & Garden Supply Co., Uxbridge	F.	98.89WB .13YB	0.09	0.82	0.07	60-11†	8/1940		
	Total Melilotus spp.		99.02							
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.									
967	Sweet Clover, No. 951	L.	97.70	0.15	0.25	1.90	85-5	12/1939	**	
	Greenfield Farmers Co-operative Exchange, Greenfield	F.	98.40WB 1.39YB	0.03	0.14	0.04	90-3	8/1940		
	Total Melilotus spp.		99.79							

	THE STANFORD SEED CO., Buffalo, N. Y.									
645	Sweet Clover, No. 4005	L.	99.70	0.18	0.12	—	85.50	2/1940	**	
	W. N. Potter Grain Stores, Inc., Hadley	F.	99.91	0.04	0.05	—	70–22†	8/1940		
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.									
863	Sweet Clover, No. 4062	L.	99.60	0.10	—	—	80–5	1/1939	(c)**	
	Checkerboard Feed Store, Amesbury	F.	95.87WB 3.13YB	0.23	0.51	0.26	60–21†	8/1940		
	Total Melilotus spp.		99.00							
	WHITE CLOVER									
	JOSEPH BRECK & SONS, Boston, Mass.									
161	Polish White Clover	L.	98.56	0.92	0.17	—	85.00	12/1939		36 English Plantain
		F.	98.24	0.81	0.42	0.53	78–9	8/1940		31 English Plantain
	ARTHUR R. CONE, Buffalo, N. Y.									
1110	White Dutch No. 32–48	L.	98.77	0.15	0.62	0.46	78–14	3/1940		
	Sunshine Feed Stores, Ayer	F.	98.69	0.15	0.19	0.97	40–56†	8/1940		
	THE CRAVER DICKINSON CO., Buffalo, N. Y.									
1166	White Dutch, No. W 26–549	L.	98.00	0.85	—	1.15	77–19	2/1940		
	Berkshire Coal & Grain Co., North Adams	F.	98.09	0.68	0.10	1.13	75–22	8/1940	(a)	65 English Plantain
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.									
968	White Dutch, No. 952	L.	99.00	0.15	0.35	0.50	75–17	12/1939		
	Greenfield Farmers' Co-operative Exchange, Greenfield	F.	99.18	0.09	0.27	0.46	86–12	8/1940		
	THOMAS W. EMERSON CO., Boston, Mass.									
509	White Clover	L.	98.50	0.30	—	—	95.00	*/1939		
	F. A. Fales & Co., Norwood	F.	98.90	0.38	0.21	0.51	79–19†	8/1940		
	GARFIELD WILLIAMSON, INC., New York, N. Y.									
446	White Clover, No. 4661	L.	99.07	0.08	0.65	0.21	39–52	2/1940		
	Service Hardware & Radio Co., Allston	F.	99.03	0.05	0.83	0.09	41–48	8/1940		
	CHARLES C. HART SEED CO., Wethersfield, Conn.									
1184	White Clover	L.	98.00	0.25	1.70	0.05	70–8	3/1939		
	F. H. Turner & Co., Great Barrington	F.	96.70†	0.67†	0.83	1.80	77–8	8/1940	(a)	49 English Plantain

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(E) Small percentage green stained seed, indicating Northern European origin.
** Kind not stated; required by law.
(c) Wholesaler claims this seed not sold by him, at least not during the current year; calls attention to date of test.
(a) Noxious weeds not declared but found excessive.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer when Other than Wholesale Distributor, and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test	Notes	Noxious Weed Seeds per Ounce
	WHITE CLOVER—Concluded									
	THE STANFORD SEED CO., Buffalo, N. Y.									
1181	White Clover, No. 2362	L.	97.45	0.30	0.35	1.90	84–12	1/1940		
	Platt & Goslee, Great Barrington	F.	98.49	0.18	0.50	0.83	81–18	8/1940	(a)	19 English Plantain
	J. B. VARICK CO., Manchester, N. H.									
868	White Clover	L.	96.60	*	—	—	82.00	*/*		
	L. L. Peavey, Inc., Newburyport	F.	97.10	0.25	0.40	2.25	82–14	8/1940		
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.									
407	White Clover, No. 6066	L.	98.32	0.32	—	—	80–10	1/1938		
	Brownell Hardware Co., Attleboro	F.	98.85	0.43	0.34	0.38	64–6†	8/1940		
854	White Clover, No. 5124	L.	98.60	0.35	0.35	0.70	80–10	1/1940		
	Herman F. Davis, Merrimac	F.	98.02	0.76†	0.25	0.97	80–9	8/1940	(b)	14 English Plantain 45 English Plantain and 2 Brassica sp.
	CORN									
	JOSEPH BRECK & SONS, Boston, Mass.									
147F	Longfellow, No. 9327W	L.	98.00	—	—	—	92.00	1/1940		
		F.	100.00	—	—	—	97.00	8/1940		
148F	Early Yellow Canada, No. 9380W	L.	98.00	—	—	—	90.00	1/1940		
		F.	100.00	—	—	—	92.00	8/1940		
149F	Eureka Ensilage, No. 9369	L.	98.00	—	—	—	90.00	1/1940		
		F.	100.00	—	—	—	96.00	8/1940		
150	Sweet Fodder, No. 9365W	L.	98.00	—	—	—	82.00	12/1939	**	
		F.	99.94	—	0.06	—	77.00	8/1940		
151F	Hybrid Sweepstakes, No. 9323	L.	98.00	—	—	—	93.00	1/1940		
		F.	99.86	—	0.14	—	94.00	8/1940		
152F	Improved Leaming, No. 9326	L.	98.00	—	—	—	87.00	1/1940		
		F.	99.93	—	0.07	—	89.00	8/1940		
153F	Breck's Sweepstakes, No. 9325	L.	98.00	—	—	—	88.00	1/1940		
		F.	100.00	—	—	—	89.00	8/1940		

154F	Smoky Dent, No. 9356	L.	98.00	—	—	—	93.00	1/1940	
		F.	100.00	—	—	—	87.00	8/1940	
	COBURN SEED & SUPPLY CO., Chelmsford, Mass.								
1116F	Excelsior Ensilage, No. 3070	L.	99.00	—	1.00	—	90.00	3/1940	
		F.	99.71	—	0.29	—	95.00	8/1940	
	COMSTOCK, FERRE & CO., Wethersfield, Conn.								
671F	Yellow Sweepstakes, No. 1333	L.	99.00	—	—	—	90.00	3/1940	
	G. W. Gardiner & Sons, Fall River	F.	99.90	—	0.10	—	96.00	8/1940	
	ARTHUR R. CONE, Buffalo, N. Y.								
791F	Improved Leaming Type, No. 80-521	L.	99.50	0.10	0.40	—	90.00	1/1940	**
	Farm Service Co., Hudson	F.	100.00	—	—	—	97.00	8/1940	
889F	Longfellow Flint, No. 83-124	L.	99.50	—	0.30	0.20	90.00	2/1940	
	Farm Service Co., Lowell	F.	99.90	—	0.10	—	98.00	8/1940	
890F	Southern White, No. 80-515	L.	99.50	0.10	0.40	—	90.00	2/1940	
	Farm Service Co., Lowell	F.	100.00	—	—	—	94.00	8/1940	
891F	Early Eureka, No. 85-15	L.	99.50	0.10	0.40	—	90.00	2/1940	
	Farm Service Co., Lowell	F.	100.00	—	—	—	95.00	8/1940	
1101F	Leaming Type, No. 80-565	L.	99.50	—	0.25	0.25	90.00	4/1940	**
	Sunshine Feed Stores, Ayer	F.	99.94	—	0.06	—	96.00	8/1940	
1102F	Yellow Sweepstakes, No. 80-539	L.	99.50	0.10	0.40	—	90.00	2/1940	
	Sunshine Feed Stores, Ayer	F.	100.00	—	—	—	93.00	8/1940	
1103F	Arco Ensilage Type, No. 80-534	L.	99.50	—	0.25	0.25	90.00	3/1940	**
	Sunshine Feed Stores, Ayer	F.	99.90	—	0.10	—	91.00	8/1940	
1104F	King Philip Flint, No. 24	L.	99.00	—	—	—	90.00	3/1940	
	Sunshine Feed Stores, Ayer	F.	100.00	—	—	—	94.00	8/1940	
1121F	Minnesota #13, No. 80-508	L.	99.50	0.10	0.40	—	90.00	2/1940	
	Farm Service Co., Ayer	F.	100.00	—	—	—	97.00	8/1940	
	DELTA SALES CO., DELTA, PA.								
1014F	Kato Ensilage, No. 5	L.	98.00	—	2.00	—	90.00	4/1940	
	The Cutler Co., West Brookfield	F.	99.93	—	0.07	—	89.00	8/1940	

(a) Noxious weeds not declared but found excessive.
* Information required by law not given.
† Indicates purity below, germination below, or excessive weed seed, depending upon column in which it is found.
(b) Noxious weeds declared but found excessive.
** Variety required by law, but not stated.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer when Other than Wholesale Distributor, and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test	Notes	Noxious Weed Seeds per Ounce
	CORN—Continued									
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.									
234F	Minnesota #13, No. 969	L.	99.25	—	0.75	—	95.00	12/1939		
	Eastern States Farmers' Exchange, Taunton	F.	99.88	—	0.12	—	98.00	8/1940		
235F	Lancaster Sure Crop, No. 5881	L.	99.25	—	0.75	—	93.00	12/1939		
	Eastern States Farmers' Exchange, Taunton	F.	99.93	—	0.07	—	97.00	8/1940		
236F	Improved Leaming, No. 3431	L.	99.25	—	0.75	—	95.00	12/1939		
	Eastern States Farmers' Exchange, Taunton	F.	100.00	—	—	—	97.00	8/1940		
237F	West Branch Sweepstakes, No. 949	L.	99.25	—	0.75	—	95.00	12/1939		
	Eastern States Farmers' Exchange, Taunton	F.	100.00	—	—	—	97.00	8/1940		
447F	Golden Nugget, No. 988	L.	99.25	—	0.75	—	90.00	12/1939		
	Eastern States Farmers' Exchange, Waltham	F.	99.70	—	0.30	—	90.00	8/1940		
448F	Cornell 29-3, No. 975	L.	99.25	—	—	—	95.00	12/1939		
	Eastern States Farmers' Exchange, Waltham	F.	99.80	—	0.20	—	99.00	8/1940		
449F	U. S #44, No. 791	L.	99.25	—	0.75	—	95.00	12/1939		
	Eastern States Farmers' Exchange, Waltham	F.	100.00	—	—	—	100.00	8/1940		
450F	Indiana Hybrid #608, No. 5981	L.	99.25	—	0.75	—	95.00	12/1939		
	Eastern States Farmers' Exchange, Waltham	F.	100.00	—	—	—	99.00	8/1940		
451F	Cornell 11, No. 961	L.	99.25	—	0.75	—	95.00	12/1939		
	Eastern States Farmers' Exchange, Waltham	F.	100.00	—	—	—	98.00	8/1940		
1001F	Virginia Ensilage (Tuxpan), No. 976	L.	99.25	—	0.75	—	90.00	12/1939		
	Essex County Cooperative Farming Assoc., Topsfield	F.	99.89	—	0.11	—	96.00	8/1940		
1006F	Indiana 608, No. 891	L.	99.25	—	0.75	—	95.00	2/1940		
	Essex County Cooperative Farming Assoc., Topsfield	F.	100.00	—	—	—	99.00	8/1940		
1154F	Canada Leaming #853	L.	99.25	—	0.75	—	92.00	12/1939		
	Eastern States Farmers' Exchange, Shelburne Falls	F.	99.95	—	0.05	—	98.00	8/1940		

1198F	Minnesota 402, No. 711	L.	99.25	—	0.75	—	95.00	12/1939
	Eastern States Farmers' Exchange, Northampton	F.	100.00	—	—	—	100.00	8/1940
	THOMAS W. EMERSON CO., Boston, Mass.							
103F	Westbranch Sweepstakes, No. 863	L.	98.00	—	—	—	92.00	12/1939
		F.	100.00	—	—	—	94.00	8/1940
104F	Leaming, No. 800	L.	98.00	—	—	—	93.00	12/1939
		F.	99.94	—	0.06	—	87.00	8/1940
105F	Eureka, No. 500	L.	98.00	—	—	—	94.00	12/1939
		F.	99.82	—	0.18	—	97.00	8/1940
106F	Yellow Sweepstakes, No. 678	L.	98.00	—	—	—	94.00	12/1939
		F.	99.94	—	0.06	—	94.00	8/1940
107F	Cornell 11, No. 880	L.	98.00	—	—	—	95.00	12/1939
		F.	99.92	—	0.08	—	99.00	8/1940
	ESSEX COUNTY COOPERATIVE FARMING ASSOC., Topsfield, Mass.							
1002F	Yellow Flint	L.	*				*	*/*
		F.	99.95	—	0.05	—	99.00	8/1940
	JOSEPH HARRIS SEED CO., Rochester, N. Y.							
362F	Sweepstakes, No. 1772	L.	100.00	—	—	—	99.00	1/1940
	Joseph Harris Seed Co., Cambridge	F.	100.00	—	—	—	98.00	8/1940
	FRANK HOWARD, INC., Pittsfield, Mass.							
1051F	Howard's Golden Beauty, No. 0215	L.	99.00	—	—	—	90.00	3/1940
		F.	100.00	—	—	—	95.00	8/1940
1052F	Howard's N. Y. State 8 Row Yellow Flint No. 0240	L.	99.00	—	—	—	90.00	4/1940
		F.	100.00	—	—	—	97.00	8/1940
	MICHAEL-LEONARD SEED CO., Chicago, Ill.							
1199F	Iowealth Ensilage Hybrid 2, No. 95118	L.	99.00	—	1.00	—	95.00	12/1939
	E. J. O'Donnell Grain Co., Florence	F.	100.00	—	—	—	97.00	8/1940
1200F	Iowealth Ensilage Hybrid 100, No. 90258	L.	99.00	—	1.00	—	95.00	12/1939
	E. J. O'Donnell Grain Co., Florence	F.	100.00	—	—	—	97.00	8/1940
	THE PAGE SEED CO., Greene, N. Y.							
601F	Improved Leaming, No. 5105	L.	99.00	—	—	—	92.00	3/1938
	Shurtleff Hardware Co., Middleboro	F.	99.59	—	0.41	—	91.00	8/1940

* Information required by law not given.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer when Other than Wholesale Distributor, and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test	Notes	Noxious Weed Seeds per Ounce
	CORN—Continued									
	THE PAGE SEED CO—Continued									
921F	Page's True Eureka, No. 0320	L.	99.00	—	—	—	90.00	4/1940		
	D. Harbeck, New Bedford	F.	100.00	—	—	—	93.00	8/1940		
922F	Page's Golden Sweepstakes, No. 0340	L.	99.00	—	—	—	90.00	4/1940		
	D. Harbeck, New Bedford	F.	99.74	—	0.26	—	95.00	8/1940		
923F	Page's Lancaster Sure Crop, No. 0115	L.	99.00	—	—	—	90.00	3/1940		
	D. Harbeck, New Bedford	F.	99.29	—	0.71	—	96.00	8/1940		
924F	Page's Westbranch Sweepstakes, No. 1065	L.	99.00	—	—	—	90.00	3/1940		
	D. Harbeck, New Bedford	F.	100.00	—	—	—	92.00	8/1940		
925F	Page's Improved Leaming, No. 0335	L.	99.00	—	—	—	90.00	4/1940		
	D. Harbeck, New Bedford	F.	100.00	—	—	—	96.00	8/1940		
937F	Page's Pride of the North, No. 0490	L.	99.00	—	—	—	90.00	4/1940		
	A. E. Wardell, New Bedford	F.	100.00	—	—	—	95.00	8/1940		
938F	Page's Longfellow Flint, No. 0225	L.	99.00	—	—	—	90.00	3/1940		
	A. E. Wardell, New Bedford	F.	100.00	—	—	—	98.00	8/1940		
	PERRY SEED CO., Boston, Mass.									
1097F	Perry's Graded Sweepstakes, No. 7492	L.	99.00	—	1.00	—	90.00	4/1940		
		F.	100.00	—	—	—	96.00	8/1940		
1098F	Eureka, No. 7426	L.	99.00	—	1.00	—	90.00	4/1940		
		F.	100.00	—	—	—	96.00	8/1940		
1099F	Improved Leaming, No. 7431	L.	99.00	—	1.00	—	90.00	4/1940		
		F.	100.00	—	—	—	96.00	8/1940		
	THE PHILADELPHIA SEED CO., Philadelphia, Pa.									
672F	Lancaster Surecrop, No. Mo. M-73-R	L.	99.75	—	0.25	—	95.00	2/1940		
	W. G. Pearse & Co., Fall River	F.	99.86	—	0.14	—	98.00	8/1940		
673F	Broad Grained Yellow, No. M-82-R	L.	99.85	—	0.15	—	91.00	3/1940	**	
	W. G. Pearse & Co., Fall River	F.	100.00	—	—	—	92.00	8/1940		

1201F	West Branch, No. M-86-R	L.	99.55	—	0.45	—	90.00	4/1940
	E. J. O'Donnell Grain Co., Florence	F.	99.80	—	0.20	—	90.00	8/1940
	THE REIST SEED CO., Lancaster, Pa.							
685F	Reist Sweepstakes, No. 129	L.	99.00	—	Trace	—	95.00	3/1940
	Eastern Grain Co., Bridgewater	F.	99.82	—	0.18	—	95.00	8/1940
792F	Mammoth Yellow Sweepstakes, No. 118	L.	99.00	—	Trace	—	95.00	3/1940
	Farm Service Co., Hudson	F.	100.00	—	—	—	95.00	8/1940
793F	Lancaster Co. Sure Crop, No. 124	L.	99.00	—	Trace	—	95.00	3/1940
	Farm Service Co., Hudson	F.	99.95	—	0.05	—	96.00	8/1940
888F	Mammoth Yellow Sweepstakes, No. 118	L.	99.00	—	Trace	—	95.00	3/1940
	Farm Service Co., Lowell	F.	99.90	—	0.10	—	89.00	8/1940
892F	Lancaster Co. Sure Crop, No. 130	L.	99.00	—	Trace	—	93.00	3/1940
	Farm Service Co., Lowell	F.	99.92	—	0.08	—	97.00	8/1940
929F	Reist Sweepstakes, No. 153	L.	99.00	—	Trace	—	92.00	3/1940
	Horvitz Grain Co., New Bedford	F.	100.00	—	—	—	95.00	8/1940
930F	Mammoth Yellow Sweepstakes, No. 141	L.	99.00	—	Trace	—	95.00	3/1940
	Horvitz Grain Co., New Bedford	F.	99.65	—	0.35	—	94.00	8/1940
931F	Eureka Ensilage, No. 132	L.	99.50	—	Trace	—	92.00	3/1940
	Horvitz Grain Co., New Bedford	F.	99.85	—	0.15	—	95.00	8/1940
932F	Lancaster Co. Sure Crop, No. 159	L.	99.00	—	Trace	—	92.00	4/1940
	Horvitz Grain Co., New Bedford	F.	99.93	—	0.07	—	96.00	8/1940
964F	Improved Leaming, No. 112	L.	99.00	—	Trace	—	92.00	3/1940
	Greenfield Farmers' Co-operative Exchange, Greenfield	F.	99.81	—	0.19	—	99.00	8/1940
965F	Mammoth Yellow Sweepstakes, No. 139	L.	99.00	—	Trace	—	92.00	3/1940
	Greenfield Farmers' Co-operative Exchange, Greenfield	F.	99.82	—	0.18	—	92.00	8/1940
966F	8 Rowed Yellow Flint, No. 113	L.	99.00	—	Trace	—	95.00	3/1940
	Greenfield Farmers' Co-operative Exchange, Greenfield	F.	99.95	—	0.05	—	99.00	8/1940
1016F	Improved Leaming, No. 157	L.	99.00	—	Trace	—	92.00	3/1940
	Foster Farrar Co., Northampton	F.	100.00	—	—	—	99.00	8/1940
1017F	Cornell 29-3, No. 100	L.	99.00	—	Trace	—	95.00	2/1940
	Foster Farrar Co., Northampton	F.	100.00	—	—	—	100.00	8/1940

** Variety required by law, but not stated.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer when Other than Wholesale Distributor, and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test	Notes	Noxious Weed Seeds per Ounce
	CORN—Continued									
	ROSS BROS. CO., Worcester, Mass.									
627F	Worcester County Sweepstakes, No. A-83	L.	99.00	—	1.00	—	90.00	3/1940		
		F.	99.87	—	0.13	—	96.00	8/1940		
628F	Early Smoky Dent, No. A-91	L.	99.00	—	—	—	98.00	1/1940		
		F.	100.00	—	—	—	94.00	8/1940		
629F	Early Canada, No. A-86	L.	99.00	—	1.00	—	90.00	2/1940		
		F.	99.79	—	0.21	—	97.00	8/1940		
630	Ross Hybrid, No. A-85	L.	99.00	—	1.00	—	90.00	3/1940	**	
		F.	100.00	—	—	—	97.00	8/1940		
631F	Longfellow Flint, No. A-92	L.	99.00	—	—	—	96.00	1/1940		
		F.	99.84	—	0.16	—	95.00	8/1940		
632F	Improved Leaming, No. A-88	L.	99.00	—	1.00	—	90.00	3/1940		
		F.	100.00	—	—	—	95.00	8/1940		
633F	Eureka, No. A-82	L.	99.00	—	1.00	—	90.00	3/1940		
		F.	99.92	—	0.08	—	95.00	8/1940		
634F	West Branch Sweepstakes, No. A-84	L.	99.00	—	1.00	—	90.00	3/1940		
		F.	99.82	—	0.18	—	93.00	8/1940		
	WM. G. SCARLETT & CO., Baltimore, Md.									
602F	Eureka Ensilage "11," No. 72370	L.	98.00	0.10	—	—	90.00	1/1939		
	Shurtleff Hardware Co., Middleboro	F.	99.93	—	0.07	—	92.00	8/1940		
987F	8 Row Yellow Flint, No. 4831	L.	98.00	0.02	1.80	—	90.00	2/1940		
	The Continental Nurseries, Franklin	F.	100.00	—	—	—	97.00	8/1940		
	THE STANFORD SEED CO., Buffalo, N. Y.									
978F	Improved Leaming, No. 5493	L.	99.00	—	1.00	—	93.00	3/1940		
	Cutler Grain & Coal Co., Palmer	F.	99.95	—	0.05	—	95.00	8/1940		
1131F	Longfellow Flint, No. 1382	L.	99.00	—	1.00	—	90.00	3/1940		
	United Co-operative Farmers, Inc., Fitchburg	F.	99.99	—	0.01	—	97.00	8/1940		

1132F	Yellow Broad Kernel, No. 2565	L.	99.00	—	1.00	—	92.00	3/1940	**
	United Co-operative Farmers, Inc., Fitchburg	F.	100.00	—	—	—	96.00	8/1940	
1133F	Virginia Eureka, No. 2554	L.	99.00	—	1.00	—	90.00	3/1940	
	United Co-operative Farmers, Inc., Fitchburg	F.	99.70	—	0.30	—	98.00	8/1940	
1134F	C. P. Ensilage (Variety Unknown), No. 2453	L.	99.00	—	1.00	—	90.00	3/1940	**
	United Co-operative Farmers, Inc., Fitchburg	F.	99.90	—	0.10	—	90.00	8/1940	
1135F	Lancaster Sure Crop, No. 5325	L.	99.00	—	1.00	—	90.00	3/1940	
	United Co-operative Farmers, Inc., Fitchburg	F.	100.00	—	—	—	93.00	8/1940	
	A. E. WARDELL, New Bedford, Mass.								
939F	Pipe Stem	L.	*	—	—	—	*	*/*	
		F.	99.93	—	0.07	—	99.00	8/1940	
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.								
379F	West Branch Sweepstakes	L.	99.00	—	—	—	90.00	3/1939	
	Middlesex County Farm Bureau, Waltham	F.	99.94	—	0.06	—	92.00	8/1940	
762F	Yellow Sweepstakes, No. 7	L.	98.00	—	—	—	90.00	1/1939	
	Farmers' Co-operative Exchange, Framingham	F.	99.90	—	0.10	—	86.00	8/1940	
763F	Excelsior Ensilage	L.	99.00	—	—	—	90.00	3/1939	
	Farmers' Co-operative Exchange, Framingham	F.	99.63	—	0.37	—	94.00	8/1940	
822F	Improved Leaming Type, No. 7248	L.	99.00	—	1.00	—	90.00	3/1940	**
	H. K. Webster Co., Lawrence	F.	100.00	—	—	—	97.00	8/1940	
823F	Virginia Dent, Eureka Type, No. 7237	L.	99.00	—	1.00	—	90.00	3/1940	**
	H. K. Webster Co., Lawrence	F.	100.00	—	—	—	96.00	8/1940	
824F	Longfellow Type, No. 7252	L.	99.00	—	1.00	—	93.00	3/1940	**
	H. K. Webster Co., Lawrence	F.	100.00	—	—	—	96.00	8/1940	
825F	Improved Leaming Type, No. 7248	L.	99.00	—	1.00	—	90.00	3/1940	**
	H. K. Webster Co., Lawrence	F.	100.00	—	—	—	96.00	8/1940	
826F	Improved Sweepstakes Type, No. 7242	L.	99.00	—	1.00	—	90.00	3/1940	**
	H. K. Webster Co., Lawrence	F.	99.65	—	0.35	—	97.00	8/1940	
852F	Lancaster Surecrop, No. 7241	L.	99.00	—	1.00	—	90.00	3/1940	
	Herman F. Davis, Merrimac	F.	99.85	—	0.15	—	97.00	8/1940	

** Variety required by law, but not stated.
* Information required by law not given.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer when Other than Wholesale Distributor, and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test	Notes	Noxious Weed Seeds per Ounce
	CORN—Concluded									
	WHITNEY ECKSTEIN SEED CO.—Continued									
874F	Yellow Sweepstakes Type, No. 7232	L.	99.00	—	1.00	—	86.00	1/1940	**	
	F. H. Sargent & Son, Brockton	F.	99.63	—	0.37	—	80.00	8/1940		
875F	Cornell 29–3 (Certified No. 244343)	L.	99.98	—	0.02	—	96.00	3/1940		
	Frank P. Mills, Campello	F.	100.00	—	—	—	95.00	8/1940		
876F	Yellow Sweepstakes Type, No. 7254	L.	99.00	—	1.00	—	90.00	3/1940	**	
	Frank P. Mills, Campello	F.	99.10	—	0.90	—	95.00	8/1940		
877F	Lancaster Sure Crop Type, No. 7255	L.	99.00	—	1.00	—	90.00	3/1940	**	
	Frank P. Mills, Campello	F.	99.78	—	0.22	—	94.00	8/1940		
1086F	Lancaster Sure Crop Type, No. 7251	L.	99.00	—	1.00	—	90.00	3/1940	**	
	Checkerboard Feed Store, Amherst	F.	100.00	—	—	—	90.00	8/1940		
1148F	White Cap Yellow Dent Type, No. 7205	L.	99.00	—	1.00	—	90.00	1/1940	**	
	H. Newell & Co., Shelburne Falls	F.	99.95	—	0.05	—	98.00	8/1940		
1149F	Early 8 Row Canada Flint, No. 7245	L.	99.00	—	1.00	—	90.00	1/1940		
	H. Newell & Co., Shelburne Falls	F.	99.94	—	0.06	—	85.00	8/1940		
	T. W. WOOD & SONS, Richmond, Va.									
665F	Lancaster Surecrop, No. 503	L.	99.00	—	—	—	90.00	3/1940		
	Mackenzie & Winslow, Inc., Fall River	F.	99.94	—	0.06	—	91.00	8/1940		
666F	Improved Leaming, No. 34	L.	99.00	—	1.00	—	90.00	3/1940		
	Mackenzie & Winslow, Inc., Fall River	F.	99.68	—	0.32	—	95.00	8/1940		
667F	Sweepstakes, No. 106	L.	99.00	—	1.00	—	90.00	3/1940		
	Mackenzie & Winslow, Inc., Fall River	F.	99.93	—	0.07	—	96.00	8/1940		
956F	Hybrid Yellow Sweepstakes, No. 2104	L.	99.00	—	1.00	—	90.00	4/1940		
	Community Feed Stores, South Deerfield	F.	99.30	—	0.70	—	96.00	8/1940		
957F	Md. 4 Hybrid Red Sweepstakes, No. 2152	L.	99.00	—	1.00	—	90.00	4/1940		
	Community Feed Stores, South Deerfield	F.	99.75	—	0.25	—	91.00	8/1940		

958F	Early Wonder Sweepstakes, No. 654	L.	99.00	—	1.00	—	90.00	4/1940
	Community Feed Stores, South Deerfield	F.	99.88	—	0.12	—	94.00	8/1940
959F	Canada Early Yellow Flint, No. 534	L.	99.00	—	1.00	—	90.00	3/1940
	Community Feed Stores, South Deerfield	F.	99.95	—	0.05	—	99.00	8/1940
960F	Early Yellow Dent, No. 655M	L.	99.00	—	1.00	—	90.00	4/1940
	Community Feed Stores, South Deerfield	F.	99.85	—	0.15	—	92.00	8/1940
1013F	Eureka Ensilage, No. 1607	L.	99.00	—	1.00	—	90.00	3/1940
	The Cutler Co., West Brookfield	F.	100.00	—	—	—	98.00	8/1940
1015F	Hybrid Yellow Sweepstakes, No. 2103	L.	99.00	—	1.00	—	90.00	3/1940
	The Cutler Co., West Brookfield	F.	99.93	—	0.07	—	98.00	8/1940
1155F	Selected Beauty, No. 108	L.	99.00	—	1.00	—	90.00	4/1940
	W. N. Potter Grain Stores, Shelburne Falls	F.	100.00	—	—	—	97.00	8/1940
1156F	West Branch Sweepstakes, No. 657	L.	99.00	—	1.00	—	90.00	4/1940
	W. N. Potter Grain Stores, Shelburne Falls	F.	99.74	—	0.26	—	87.00	8/1940
1157F	Lancaster Sure Crop, No. 502	L.	99.00	—	1.00	—	90.00	4/1940
	W. N. Potter Grain Stores, Shelburne Falls	F.	99.94	—	0.06	—	89.00	8/1940
1161F	Canada Early Yellow Flint, No. 555	L.	99.00	—	1.00	—	90.00	3/1940
	W. N. Potter Grain Stores, Charlemont	F.	99.95	—	0.05	—	97.00	8/1940
1162F	Selected Beauty, No. 185	L.	99.00	—	1.00	—	90.00	4/1940
	W. N. Potter Grain Stores, Charlemont	F.	99.58	—	0.42	—	95.00	8/1940
	F. H. WOODRUFF & SONS, Milford, Conn.							
829F	Improved Leaming Lot No. 7-0179	L.	99.00	—	0.01	—	92.00	1/1940
	Treat Hardware Corp., Lawrence	F.	99.94	—	0.06	—	94.00	8/1940
830F	Southern Hybrid Sweepstakes	L.	99.00	—	0.01	—	90.00	1/1940
	Treat Hardware Corp., Lawrence	F.	99.94	—	0.06	—	84.00	8/1940
832F	Eureka Ensilage, No. 13928	L.	99.00	—	—	—	95.00	3/1939
	Treat Hardware Corp., Lawrence	F.	99.85	—	0.15	—	97.00	8/1940
1123F	Early 8 Rowed Canada, No. 13936	L.	99.00	—	1.00	—	93.00	3/1940
	Farm Service Co., Ayer	F.	100.00	—	—	—	95.00	8/1940

** Variety required by law, but not stated.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer when Other than Wholesale Distributor, and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test	Notes	Noxious Weed Seeds per Ounce
	FESCUES									
	COLLINS SEED SERVICE CO., Boston, Mass.									
100	New Zealand Chewing's	L.	99.30	0.10	0.60	—	92.00	6/1939		
		F.	98.75	—	0.79	0.46	48.00†	4/1940		
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.									
1007	New Zealand Chewing's	L.	97.25	0.25	1.90	0.60	80.00	6/1939		
	Essex County Co-operative Farming Assoc., Topsfield	F.	98.60	0.05	1.21	0.14	44.00†	5/1940		
	THOMAS W. EMERSON CO., Boston, Mass.									
172	New Zealand Chewing's, No. 34223	L.	99.39	0.15	0.41	0.05	85.00	12/1939		
		F.	98.59†	0.04	1.14	0.23	66.00†	4/1940		
	F. H. WOODRUFF & SONS, Milford, Conn.									
1057	Chewing's, No. G. 71-76	L.	98.62	0.14	1.14	0.10	76.50	1/1940		
	Frank Howard, Inc., Pittsfield	F.	98.76	0.10	0.71	0.43	65.00†	5/1940		
	MANGELS									
	ASSOCIATED SEED GROWERS, INC., Cambridge, N. Y.									
860	Mammoth Long Red	L.	*	—	—	—	90.00	11/1939		
	Checkerboard Feed Store, Amesbury	F.	99.92	0.04	0.04	—	80.00†	7/1940		
	JOSEPH BRECK & SONS, Boston, Mass.									
567	Mangel	L.	*	—	—	—	*	*/*	**	
	Franklin Hardware & Plumbing Supply Co., Franklin	F.	99.61	0.09	0.30	—	66.00	7/1940		
	FERRY-MORSE SEED CO., Detroit, Mich.									
1143	Mammoth Long Red	L.	*	—	—	—	*	*/*		
	Deerfield Hardware Co., South Deerfield	F.	99.91	—	0.09	—	84.00	8/1940		
	CHARLES C. HART SEED CO., Wethersfield, Conn.									
662	Mammoth Prize Long Red	L.	97.00	—	—	—	84.00	12/1939		
	Pierce Hardware Co., Taunton	F.	99.62	—	0.38	—	70.00†	8/1940		
	MICHAEL-LEONARD SEED CO., Chicago, Ill.									
1139	Leonard's Improved Mammoth Long Red	L.	97.00	—	—	—	80.00	12/1939		
	United Co-operative Farmers, Inc., Fitchburg	F.	99.39	—	0.61	—	81.00	7/1940		

	THE PAGE SEED CO., Greene, N. Y.									
1191	Golden Tankard, No. D 6.5336	L.	*	—	—	—	Approx. 75.00	11/1939		
	Dresser Hull Co., Lee	F.	99.91	—	0.09	—	73.00	7/1940		
	F. H. WOODRUFF & SONS, Milford, Conn.									
954	Mammoth Long Red	L.	*	—	—	—	*	*/*		
	J. B. Sibley & Son, Ware	F.	99.89	—	0.11	—	83.00	7/1940		
	S. D. WOODRUFF & SONS, Orange, Conn.									
641	Mammoth Long Red, No. 929	L.	*	—	—	—	201 Sprouts	10/1937	‡	
	Waskiewicz Bros., Hadley	F.	99.84	—	0.16	—	83.00	7/1940		
	GERMAN MILLET									
	ARTHUR R. CONE, Buffalo, N. Y.									
539	German, No. 38–150	L.	98.80	0.51	0.17	0.36	80.00	2/1940		
	Farm Service Co., North Attleboro	F.	99.09	0.51	0.15	0.25	81.00	7/1940		
	GOLDEN MILLET									
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.									
541	Golden, No. 9086	L.	99.52	0.25	—	—	90.00	2/1939		
	Farm Service Co., North Attleboro	F.	99.43	0.35	0.08	0.14	86.00	7/1940		
658	Golden, No. 9135	L.	99.65	0.08	0.19	0.08	92.00	2/1940		
	Pierce Hardware Co., Taunton	F.	99.72	0.16	0.12	—	90.00	7/1940		
	HUNGARIAN MILLET									
	ARTHUR R. CONE, Buffalo, N. Y.									
538	Hungarian, No. 38–147	L.	99.00	0.43	0.18	0.10	83.00	2/1940		
	Farm Service Co., North Attleboro	F.	97.92†	1.86	0.14	0.08	79.00	7/1940		
	JOSEPH HARRIS SEED CO., Rochester, N. Y.									
365	Hungarian, No 1830	L.	98.85	0.82	0.30	0.03	90.00	1/1940		
	Joseph Harris Seed Co., Cambridge	F.	99.09	0.75	0.16	—	84.00	7/1940	(a)	3 Wild Mustard
	WM. G. SCARLETT & CO., Baltimore, Md.									
597	Hungarian, No. 7288	L.	97.00	0.55	2.30	0.15	70.00	12/1939		
	C. P. Washburn Co., Middleboro	F.	98.45	0.72	0.77	0.06	58.00†	7/1940		

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* Information required by law not given.
** Variety required by law, but not stated.
‡ Percentage of germination required, not number of sprouts.
(a) Noxious weeds not declared but found excessive.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer when Other than Wholesale Distributor, and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test	Notes	Noxious Weed Seeds per Ounce
	HUNGARIAN MILLET—Concluded									
	THE STANFORD SEED CO., Buffalo, N. Y.									
702	Hungarian, No. 7182	L.	99.08	0.60	0.32	—	81.00	3/1940		
	Milford Grain Co., Milford	F.	99.08	0.49	0.43	—	75.00	7/1940		
795	Hungarian, No. 5318	L.	99.18	0.52	0.30	—	88.00	2/1940		
	The City Grain Co., Marlboro	F.	98.89	0.68	0.43	—	88.00	7/1940		
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.									
508	Hungarian, No. 9056	L.	98.50	0.43	—	—	90.00	1/1938	(c)	
	F. A. Fales & Co., Norwood	F.	98.48	0.34	0.70	0.48	76.00†	7/1940	(a)	4 Brassica sp.
542	Hungarian, No. 9090	L.	98.77	0.91	—	—	85.00	2/1939	(c)	
	Farm Service Co., North Attleboro	F.	98.57	1.12	0.31	—	71.00†	7/1940		
	F. H. WOODRUFF & SONS, Milford, Conn.									
380	Hungarian	L.	99.72	0.12	0.16	—	82.50	1/1939		90 Wild Mustard
	Middlesex County Farm Bureau, Waltham	F.	98.93†	0.32	0.36	0.39	69.00†	7/1940		9 Brassica sp.
579	Hungarian, S 110–200	L.	99.24	0.60	0.06	0.10	85.00	1/1940		
	Treat Hardware Corp., Lawrence	F.	99.37	0.39	0.22	0.02	79.00	7/1940	(a)	6 Brassica sp.
	JAPANESE MILLET									
	COMSTOCK, FERRE & CO., Wethersfield, Conn.									
303	Japanese, No. 363	L.	99.75	0.10	—	—	92.00	3/1940		
	Jerry's Hardware, New Bedford	F.	99.69	0.08	0.23	—	95.00	7/1940		
	THE CRAVER DICKINSON CO., Buffalo, N. Y.									
540	Japanese, No. 81–11	L.	99.88	0.02	0.10	—	90.00	2/1940		
	Farm Service Co., North Attleboro	F.	99.92	—	0.08	—	63.00†	7/1940		
	ALBERT DICKINSON CO., Chicago, Ill.									
684	Japanese, No. 81203–4	L.	97.70	1.78	0.44	0.08	90.00	1/1940		
	Eastern Grain Co., Bridgewater	F.	97.93	2.03	0.04	—	94.00	7/1940		
962	Japanese, No. 08171	L.	99.62	0.04	0.34	—	90.00	1/1940		
	Community Feed Stores, South Deerfield	F.	99.74	0.02	0.24	—	92.00	7/1940		

	DURYEA SEED CO., INC., New York, N. Y.								
936	Japanese, No. 5333	L.	99.00	0.75	0.15	0.10	90.00	1/1940	
	Horvitz Grain Co., New Bedford	F.	99.05	0.42	0.39	0.14	90.00	7/1940	
	THOMAS W. EMERSON CO., Boston, Mass.								
169	Japanese	L.	98.73	—	1.27	—	95.00	1/1940	
		F.	99.67	0.09	0.24	—	95.00	7/1940	
	THE PAGE SEED CO., Greene, N. Y.								
926	Japanese, Fancy, N. Y. State #J 5 A 40	L.	97.72	2.19	0.11	—	87.00	3/1940	
	D. Harbeck, New Bedford	F.	98.06	1.83	0.11	—	95.00	7/1940	
	WM. G. SCARLETT & CO., Baltimore, Md.								
596	Japanese, No. 2419	L	99.04	0.04	0.22	—	95.00	1/1940	
	C. P. Washburn Co., Middleboro	F.	99.74	0.12	0.14	—	43.00†	7/1940	
	THE STANFORD SEED CO., Buffalo, N. Y.								
642	Japanese, No. 5479	L.	98.12	1.34	0.54	—	90.00	4/1940	
	W. N. Potter Grain Stores, Inc., Hadley	F.	98.73	1.25	0.02	—	91.00	7/1940	
703	Japanese, No. 1210	L.	98.00	1.50	0.50	—	87.00	3/1940	
	The Milford Grain Co., Milford	F.	98.41	1.40	0.19	—	88.00	7/1940	
737	Japanese, No. 5447	L.	98.00	1.50	0.40	0.10	90.00	3/1940	
	The Cutler Grain Co., Framingham	F.	98.40	1.47	0.13	—	92.00	7/1940	
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.								
505	Japanese, No. 9125	L.	98.42	1.42	0.12	—	85.00	1/1940	
	F. A. Fales & Co., Norwood	F.	98.17	1.67	0.12	0.01	86.00	7/1940	
	F. H. WOODRUFF & SONS, Milford, Conn.								
581	Japanese, No. G 109-15	L.	98.42	1.56	0.02	—	84.50	2/1940	
	Treat Hardware Corp., Lawrence	F.	97.70	2.15	0.15	—	87.00	7/1940	
	OATS								
	E. W. BAILEY & CO., Montpelier, Vt.								
963	Bailey's Pennant Brand, No. 05-240	L.	99.00	*	0.25	0.75	96.00	4/1940	**
	Community Feed Stores, South Deerfield	F.	98.78	0.22	0.06	0.94	95.00	8/1940	
976	Bailey's Pennant Brand, No. 02-140	L.	99.00	—	0.25	0.75	96.00	3/1940	**
	Tri-County Grain Co., Palmer	F.	99.19	0.13	0.02	0.66	98.00	8/1940	

(c) Wholesaler claims this seed not sold by him, at least not during the current year; calls attention to date of test.
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(a) Noxious weeds not declared but found excessive.
* Information required by law not given.
** Variety required by law, but not stated.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer when Other than Wholesale Distributor, and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test	Notes	Noxious Weed Seeds per Ounce
	OATS—Continued									
	BARBER & BENNETT, INC., Albany, N. Y.									
756	Canadian, No. 172	L.	98.60	0.15	0.25	1.00	94.00	4/1940	**	
	Farmers Co-operative Exchange, Framingham	F.	99.18	0.19	0.07	0.56	99.00	8/1940		
	BARTLETT & DOW CO., Lowell, Mass.									
896	Swedish Type	L.	98.48	0.08	—	—	90.00	2/1940	**	
		F.	97.96	0.12	0.22	1.70	96.00	8/1940		
	BERKSHIRE COAL & GRAIN CO., North Adams, Mass.									
688	Supreme	L.	*	*	—	—	*	*/*	**	
	F. H. Sargent & Son, Brockton	F.	98.20	0.72	0.18	0.90	94.00	8/1940		
	JOSEPH BRECK & SONS, Boston, Mass.									
65	Breck's King	L.	98.00	0.50	—	—	92.00	1/1940	**	
		F.	99.16	—	0.30	0.54	93.00	8/1940		
	ARTHUR R. CONE, Buffalo, N. Y.									
1105	Anchor Brand Seed	L.	98.50	—	0.60	0.90	90.00	3/1940	**	
	Sunshine Feed Stores, Ayer	F.	98.54	0.10	0.24	1.12	98.00	7/1940		
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.									
238	Cover Crop, No. 951	L.	98.00	0.10	0.65	1.25	90.00	12/1939	**	
	Eastern States Farmers' Exchange, Taunton	F.	99.40	0.06	0.54	—	97.00	8/1940		
239	Selected, No. 1001	L.	98.00	0.10	0.65	1.25	90.00	12/1939	**	
	Eastern States Farmers' Exchange, Taunton	F.	99.16	—	0.40	0.44	99.00	8/1940		
1197	Cornellian, No. 939	L.	99.20	0.10	0.50	0.20	90.00	12/1939		
	Eastern States Farmers' Exchange, Taunton	F.	99.86	0.04	0.04	0.06	94.00	8/1940		
	ELMORE MILLING CO., Oneonta, N. Y.									
873	Swedish Type	L.	96.00	—	—	—	95–98	*/*	**	
	Fullerton Grain Co., Brockton	F.	96.75	0.19	0.09	2.97	96.00	8/1940		
	THOMAS W. EMERSON CO., Boston, Mass.									
919	Domestic, No. 67	L.	99.41	0.26	0.11	0.22	94.00	3/1940	**	
		F.	99.40	0.21	0.21	0.18	98.00	8/1940		

920	Alberta, Swedish White, No. 71	L.	99.05	0.05	0.01	0.94	93.00	2/1940	**
		F.	99.07	—	0.03	0.90	97.00	8/1940	
	FARM SERVICE CO., Middleboro, Mass.								
599	Alberta, Victory Strain No. 101537	L.	97.50	0.30	0.50	1.70	Approx. 95.00	4/1940	
		F.	97.24	0.76	0.42	1.58	94.00	8/1940	
	FARM SERVICE CO., Fitchburg, Mass.								
942	Alberta, Victory Strain, No. 101536	L.	97.50	0.30	0.50	1.70	Approx. 95.00	3/1940	
	Farm Service Co., Fall River	F.	96.80	0.51	0.31	2.38	95.00	8/1940	
895	Alberta, Victory Strain, No. 101340	L.	97.50	0.30	0.50	1.70	Approx. 95.00	3/1940	
	Farm Service Co., Lowell	F.	98.70	0.40	0.12	0.78	98.00	8/1940	
	PERRY SEED CO., Boston, Mass.								
1100	White Seed, No. 2	L.	99.00	—	—	—	90.00	5/1940	**
		F.	97.96†	0.10	1.08	0.86	96.00	7/1940	
	RALSTON PURINA CO., Buffalo, N. Y.								
979	Selected Swedish Type, No. 106	L.	98.00	0.10	0.50	1.50	90.00	3/1940	**
	Checkerboard Feed Store, Palmer	F.	98.00	—	0.12	1.88	97.00	8/1940	
1087	Swedish Type, No. 105	L.	98.00	0.10	0.50	1.25	90.00	3/1940	**
	Checkerboard Feed Store, Amherst	F.	97.86	0.02	0.78	1.34	92.00	8/1940	
1078	Victory Type, No. 103-A	L.	99.00	0.10	0.25	0.60	90.00	4/1940	**
	Checkerboard Feed Store, Pittsfield	F.	99.50	—	0.01	0.49	98.00	8/1940	
	ROSS BROS. CO., Worcester, Mass.								
635	Swedish Select No. A 68	L.	99.00	0.05	0.01	0.94	93.00	2/1940	
		F.	98.74	0.06	0.02	1.18	95.00	8/1940	
	ST. ALBANS GRAIN CO., St. Albans, Vt.								
687	Wirthmore Brand Seed, No. 5	L.	97.50	1.30	0.50	0.70	95.00	3/1940	**
	Eastern Grain Co., Bridgewater	F.	97.38	1.08	0.22	1.32	94.00	8/1940	
708	Wirthmore Brand Seed, No. 4	L.	98.00	1.30	1.00	—	95.00	3/1940	**
	Milford Grain Co., Milford	F.	97.42	0.66	0.39	1.53	91.00	8/1940	
779	Wirthmore Brand, No. 2	L.	98.00	0.30	1.00	—	95.00	3/1940	**
	United Co-operative Society, Maynard	F.	98.26	0.26	0.14	1.34	96.00	8/1940	

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1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer when Other than Wholesale Distributor, and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test	Notes	Noxious Weed Seeds per Ounce
	OATS—Concluded									
	ST. ALBANS GRAIN CO.—Continued									
813	Wirthmore Brand Seed, No. 3	L.	98.00	0.60	0.30	—	95.00	4/1940	**	
	Lawrence Bros., Falmouth	F.	96.84†	0.92	0.18	2.06	92.00	7/1940		
977	Wirthmore Brand Seed, No. 10	L.	96.50	1.80	0.20	1.50	95.00	4/1940	**	
	Cutler Grain & Coal Co., Palmer	F.	98.20	0.72	0.18	0.90	97.00	8/1940		
1095	Wirthmore Brand, No. 8	L.	96.50	1.80	0.20	1.50	95.00	4/1940	**	
	Cunningham Grain Co., Malden	F.	98.46	0.66	0.16	0.72	94.00	7/1940		
	TIOGA MILLS, INC., Waverly, N. Y.									
1185	Tioga Fancy Recleaned Seed, No. 9-3	L.	99.00	0.01	—	—	97.00	3/1939	**	
	Dresser Hull Co., Lee	F.	98.88	0.03	1.01	0.08	94.00	8/1940		
	H. K. WEBSTER CO., Lawrence, Mass.									
828	Victory Type, Alberta Strain	L.	96.79	0.91	0.48	1.82	94.00	4/1940	**	
		F.	96.98	0.82	0.66	1.54	94.00	8/1940		
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.									
252	Wolverine Type, No. 8344	L.	97.00	0.20	2.80	—	90.00	3/1940	**	
	W. G. Pearse & Co., Fall River	F.	94.86†	0.06	0.18	4.90	88.00	8/1940		
	T. W. WOOD & SONS, Richmond, Va.									
664	Seed Oats, No. 183	L.	98.50	0.25	1.00	0.25	80.00	3/1940	**	
	Mackenzie & Winslow, Inc., Fall River	F.	99.35	0.02	0.63	—	95.00	8/1940		
	ORCHARD GRASS									
	THE BELT SEED CO., Syracuse, N. Y.									
1062	Orchard Grass, No. 1009	L.	86.50	0.73	11.36	1.41	85.00	2/1940		
	Carr Hardware Co., Pittsfield	F.	82.56†	1.72†	13.45	2.27	93.00	7/1940	(a)	67 English Plantain
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.									
1009	Orchard Grass	L.	88.00	0.30	10.70	1.00	85.00	6/1939		
	Essex County Co-operative Farming Assoc., Topsfield	F.	87.44	0.16	12.14	0.26	88.00	7/1940		
	JOHN D. LYON, Belmont, Mass.									
1126	Orchard Grass, No. 3851	L.	*	—	—	—	*	*/*		
	Fitchburg Hardware Co., Fitchburg	F.	85.64	0.10	14.16	0.10	94.00	7/1940	(a)	12 English Plantain

FIELD PEAS

	ARTHUR R. CONE, Buffalo, N. Y.								
943	Canada, No. 42–51	L.	99.00	0.10	0.20	—	92.00	2/1940	
	Farm Service Co., Fall River	F.	99.21	—	0.56	0.23	94.00	7/1940	
	THE CRAVER DICKINSON CO., Buffalo, N. Y.								
1076	Canada, No. 85–21	L.	99.00	0.10	0.90	—	90.00	12/1939	
	Pittsfield Grain Co., Pittsfield	F.	99.57	—	0.22	0.21	96.00	7/1940	
	THE STANFORD SEED CO., Buffalo, N. Y.								
709	Canada, No. 2389	L.	99.00	0.05	0.95	—	94.00	2/1940	
	Milford Grain Co., Milford	F.	99.52	—	0.25	0.23	96.00	7/1940	
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.								
589	Canada, No. 9577	L.	99.00	—	1.00	—	93.00	1/1940	
	H. K. Webster Co., Lawrence	F.	99.94	—	0.06	—	95.00	7/1940	
764	Canada	L.	99.00	—	—	—	90.00	2/1939	(c)
	Farmers Co-operative Exchange, Framingham	F.	99.68	—	—	0.32	72.00†	8/1940	

RAPE

	ARTHUR R. CONE, Buffalo, N. Y.								
1108	Dwarf Essex, No. 44–35	L.	98.50	0.25	0.25	1.00	90.00	3/1940	
	Sunshine Feed Stores, Ayer	F.	99.41	0.02	0.57	—	92.00	7/1940	
	THE CRAVER DICKINSON CO., Buffalo, N. Y.								
659	Dwarf Essex, No. 95–12	L.	99.63	0.09	0.28	—	97.00	2/1940	
	Pierce Hardware Co., Taunton	F.	99.89	0.04	0.07	—	98.00	8/1940	
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.								
1008	Dwarf Essex	L.	99.50	0.05	0.45	Trace	90.00	12/1938	
	Essex County Co-operative Farming Assoc., Topsfield	F.	99.22	0.06	0.72	—	94.00	7/1940	
	FOSTER FARRAR CO., Northampton, Mass.								
1018	Dwarf Essex, No. 1371	L.	99.00	—	—	—	90.00	3/1940	
		F.	99.42	0.08	0.50	—	99.00	8/1940	
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.								
941	Dwarf Essex, No. 9315	L.	99.17	0.07	0.76	—	88.00	1/1940	
	A. E. Wardell, New Bedford	F.	99.45	0.09	0.45	0.01	88.00	8/1940	

** Variety required by law, but not stated.
† Indicates purity below, germination below, or excessive weed seed, depending upon column in which it is found.
(a) Noxious weeds not declared but found excessive.
* Information required by law not given.
(c) Wholesaler claims this seed not sold by him, at least not during the current year; calls attention to date of test.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer when Other than Wholesale Distributor, and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test	Notes	Noxious Weed Seeds per Ounce
	REDTOP									
	JOSEPH BRECK & SONS, Boston, Mass.									
163	Fancy Redtop, No. 7270	L.	95.10	0.20	4.60	0.10	92.00	8/1939		
		F.	93.35†	0.33	6.23	0.09	89.00	7/1940		
	ARTHUR R. CONE, Buffalo, N. Y.									
723	Redtop, No. 30-90	L.	92.15	0.13	7.60	0.05	90.00	2/1940		
	George A. Fair Co., Holliston	F.	91.38	0.14	7.66	0.82	93.00	7/1940		
	ALBERT DICKINSON CO., Chicago, Ill.									
678	Redtop, No. 41710	L.	90.40	0.20	9.00	0.40	90.00	1/1940		
	Eastern Grain Co., Bridgewater	F.	92.48	0.19	7.04	0.29	92.00	7/1940		
794	Redtop, No. 41673	L.	95.20	0.20	3.60	1.00	91.00	9/1939		
	Farm Service Co., Hudson	F.	97.18	0.26	2.30	0.26	97.00	7/1940		
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.									
1011	Redtop, Fancy, No. 101	L.	96.50	0.40	2.85	0.25	93.00	12/1939		
	Essex County Co-operative Farming Assoc., Topsfield	F.	98.23	0.20	1.57	—	95.00	7/1940		
	THOMAS W. EMERSON CO., Boston, Mass.									
167	Fancy Redtop, No. 7707	L.	81.73	0.60	17.87	0.10	82.00	2/1940		
		F.	81.71	0.42	17.69	0.18	90.00	7/1940		
724	Redtop, Gem	L.	91.00	0.92	—	—	90.00	3/1939		
	George A. Fair Co., Holliston	F.	89.79	0.40	9.72	0.09	90.00	7/1940		
	JOSEPH HARRIS SEED CO., Rochester, N. Y.									
368	Redtop, No. 1858	L.	98.45	0.20	1.35	—	80.00	1/1940		
	Joseph Harris Seed Co., Cambridge	F.	98.67	0.06	1.27	—	83.00	7/1940		
	CHARLES C. HART SEED CO., Wethersfield, Conn.									
639	Redtop, Fancy	L.	98.00	0.11	1.78	0.11	92.50	11/1938		
	Waskiewicz Bros., Hadley	F.	86.59†	1.07†	11.94	0.40	87.00	7/1940		
733	Redtop	L.	98.00	0.11	1.78	0.11	92.50	11/1938		
	Millis Coal & Grain Co., Millis	F.	91.61†	0.32	8.07	—	89.00	7/1940		
1187	Redtop, No. G-68-205	L.	98.84	0.13	1.00	0.03	90.00	3/1940		
	Dresser-Hull Co., Lee	F.	98.75	0.15	0.95	0.15	95.00	7/1940		

	HENRY HIRSCH & SONS, INC., Toledo, Ohio								
349	Solar, No. 8115	L.	94.46	0.39	4.85	0.30	90.00	2/1940	
	Farm Service Co., Middleboro	F.	93.86	0.23	5.76	0.15	90.00	7/1940	
	D. LANDRETH SEED CO., Bristol, Pa.								
780	Fancy Redtop, No. 579	L.	93.89	0.55	5.10	0.46	89.00	2/1940	
	United Co-operative Society, Maynard	F.	93.42	0.41	5.77	0.40	90.00	7/1940	
	JOHN D. LYON, Belmont, Mass.								
669	Redtop, No. 400	L.	94.02	0.36	5.44	0.18	90.00	2/1940	
	Mackenzie & Winslow, Inc., Fall River	F.	92.93	0.30	6.17	0.60	94.00	7/1940	
	WM. G. SCARLETT & CO., Baltimore, Md.								
759	Redtop, No. 5916	L.	92.50	0.75	0.65	0.10	90.00	2/1940	
	Farmers Co-operative Exchange, Framingham	F.	91.63	0.29	7.93	0.15	91.00	7/1940	
	THE STANFORD SEED CO., Buffalo, N. Y.								
705	Redtop, No. 2200	L.	92.39	0.13	7.48	—	92.00	2/1940	
	Milford Grain Co., Milford	F.	92.23	0.28	7.40	0.09	89.00	7/1940	
949	Redtop, No. 2557	L.	93.68	0.49	5.73	0.10	90.00	4/1940	
	C. J. Howland, North Brookfield	F.	94.69	0.23	4.96	0.12	94.00	7/1940	
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.								
656	Pan American Redtop, No. 4320	L.	93.70	0.90	5.30	0.10	90.00	1/1940	
	The Borden Grain Co., Taunton	F.	92.93	0.71	6.31	0.05	93.00	7/1940	
	F. H. WOODRUFF & SONS, Milford, Conn.								
583	Fancy Redtop	L.	90.00	0.97	7.92	1.11	90.00	1/1940	
	Treat Hardware Corp., Lawrence	F.	90.62	1.30	6.65	1.43	93.00	7/1940	
	RYE								
	JOSEPH BRECK & SONS, Boston, Mass.								
166F	Winter, Rosen, No. 74-214	L.	94.50	0.25	—	—	90.00	10/1939	
		F.	98.74	0.04	1.14	0.08	88.00	7/1940	
	ARTHUR R. CONE, Buffalo, N. Y.								
893	Spring, No. 85-97	L.	99.50	—	0.39	0.09	87.00	2/1940	**
	Farm Service Co., Lowell	F.	98.98	0.02	0.76	0.24	77.00†	7/1940	
	ALBERT DICKINSON CO., Chicago, Ill.								
679	Spring, No. 74228	L.	96.45	0.14	2.73	0.68	91.00	2/1940	**
	Eastern Grain Co., Bridgewater	F.	98.14	0.20	1.60	0.06	91.00	7/1940	

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1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer when Other than Wholesale Distributor, and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test	Notes	Noxious Weed Seeds per Ounce
	RYE—Concluded									
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.									
240	Prolific Spring, No. 2931	L.	97.00	0.10	2.70	0.20	90.00	12/1939		
	Eastern States Farmers' Exchange, Taunton	F.	98.38	—	1.54	0.08	89.00	7/1940		
	WM. G. SCARLETT & CO., Baltimore, Md.									
590	Spring, No. 20010	L.	96.00	0.50	2.50	1.00	75.00	1/1940	**	
	C. P. Washburn Co., Middleboro	F.	97.55	0.01	1.20	1.24	55.00†	7/1940		
	THE STANFORD SEED CO., Buffalo, N. Y.									
706	Spring, No. 2355	L.	96.41	0.18	2.83	0.58	93.00	2/1940	**	
	Milford Grain Co., Milford	F.	97.90	0.14	1.84	0.12	92.00	7/1940		
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.									
661	Spring, No. 8338	L.	97.80	0.20	1.40	0.60	91.00	1/1940	**	
	Pierce Hardware Co., Taunton	F.	97.86	—	1.20	0.94	78.00†	8/1940		
	RYEGRASS									
	THE BELT SEED CO., Syracuse, N. Y.									
1061	Domestic Ryegrass, No. 2158	L.	99.09	0.13	0.58	0.20	90.00	3/1940		
	Carr Hardware Co., Pittsfield	F.	98.68	0.06	1.23	0.03	91.00	7/1940		
	ARTHUR R. CONE, Buffalo, N. Y.									
1106	Domestic Ryegrass, No. 39-49	L.	99.56	0.20	0.24	—	92.00	3/1940		
	Sunshine Feed Stores, Ayer	F.	99.58	0.13	0.27	0.02	95.00	7/1940		
	THE CRAVER DICKINSON CO., Buffalo, N. Y.									
1127	Ryegrass, No. 38-35	L.	99.63	0.20	—	—	93.00	2/1936	**	
	Fitchburg Hardware Co., Fitchburg	F.	99.74	0.13	0.13	—	90.00	7/1940		
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.									
1004	Domestic Ryegrass	L.	99.00	0.40	0.50	0.10	85.00	6/1939		
	Essex County Co-operative Farming Assoc., Topsfield	F.	99.96	—	0.02	0.02	98.00	7/1940		
	SOYBEANS									
	ARTHUR R. CONE, Buffalo, N. Y.									
894	Black Wilson	L.	99.00	—	0.01	0.04	90.00	2/1940		
	Farm Service Co., Lowell	F.	99.93	—	0.07	—	94.00	7/1940		

	WM. G. SCARLETT & CO., Baltimore, Md.								
592	Wilson, No. 17840	L.	98.00	0.50	1.50	—	90.00	11/1939	
	C. P. Washburn Co., Middleboro	F.	99.02	—	0.98	—	88.00	7/1940	
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.								
586	Black Wilson	L.	99.60	—	0.40	—	83.00	3/1940	
	H. K. Webster Co., Lawrence	F.	99.64	—	0.36	—	83.00	7/1940	
	SUDAN GRASS								
	DURYEA SEED CO., INC., New York, N. Y.								
561	Sudan Grass, No. 25401	L.	97.00	0.05	—	—	85.00	2/1939	
	W. K. Gilmore & Sons, Norfolk	F.	97.66	0.05	2.05	0.24	83.00	5/1940	
	HENRY HIRSCH & SONS, INC., Toledo, Ohio								
790	Fancy Sudan Grass, No. 8072	L.	98.00	0.05	1.85	0.10	86.00	2/1940	
	Farm Service Co., Hudson	F.	98.98	—	0.94	0.08	87.00	7/1940	
	WM. G. SCARLETT & CO., Baltimore, Md.								
692	Sudan Grass, No. 18931	L.	97.00	0.30	1.00	—	85.00	6/1939	(c)
	F. H. Sargent & Son, Brockton	F.	98.90	0.06	0.72	0.32	71.00†	7/1940	
	TIMOTHY								
	THE BELT SEED CO., Syracuse, N. Y.								
1064	Timothy, No. 549	L.	99.82	0.02	0.16	—	91.00	3/1940	
	Carr Hardware Co., Pittsfield	F.	99.91	0.04	0.05	—	95.00	7/1940	
	JOSEPH BRECK & SONS, Boston, Mass.								
158	Timothy, No. 7427	L.	99.65	0.05	0.25	0.05	90.00	12/1939	
		F.	99.55	0.08	0.25	0.12	92.00	7/1940	
	COMSTOCK, FERRE & CO., Wethersfield, Conn.								
304	Timothy, No. 1363	L.	99.75	0.50	—	—	91.00	12/1939	
	Jerry's Hardware, New Bedford	F.	99.79	0.03	0.16	0.02	88.00	7/1940	
	ARTHUR R. CONE, Buffalo, N. Y.								
980	Arco, No. 10-229	L.	99.60	0.05	0.15	0.10	92.00	3/1940	
	Farm Grain Store, Palmer	F.	99.42	0.05	0.13	0.40	95.00	7/1940	
	ALBERT DICKINSON CO., Chicago, Ill.								
682	Timothy, No. 66702	L.	99.50	0.20	0.20	0.10	90.00	1/1940	
	Eastern Grain Co., Bridgewater	F.	99.68	0.18	0.14	—	90.00	7/1940	

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1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer when Other than Wholesale Distributor, and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test	Notes	Noxious Weed Seeds per Ounce
	TIMOTHY—Concluded									
	ALBERT DICKINSON CO.—Continued									
722	Timothy, No. 66697	L.	99.65	0.05	0.02	0.10	94.00	1/1940		
	George A. Fair Co., Holliston	F.	99.81	0.05	0.14	—	85.00†	8/1940		
	DURYEA SEED CO., INC., New York, N. Y.									
934	Timothy, No. 1168	L.	99.65	0.05	0.20	0.10	92.00	11/1939		
	Horvitz Grain Co., New Bedford	F.	99.76	0.12	0.09	0.03	88.00	7/1940	(a)	11 English Plantain
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.									
1012	Timothy, No. 944	L.	99.60	0.10	0.20	0.10	90.00	12/1939		
	Essex County Co-operative Farming Assoc., Topsfield	F.	97.07†	0.06	0.31	2.56	92.00	7/1940		
	THOMAS W. EMERSON CO., Boston, Mass.									
168	Timothy, No. 18	L.	99.60	0.05	0.35	0.10	92.00	12/1939		
		F.	99.80	0.02	0.15	0.03	87.00	7/1940		
506	Timothy	L.	99.60	0.40	—	—	94.00	9/1939		
	F. A. Fales & Co., Norwood	F.	99.47	0.10	0.29	0.14	91.00	7/1940		
	FARM SERVICE CO., Fitchburg, Mass.									
741	Timothy, No. 7266	L.	99.65	0.05	—	0.05	91.00	3/1940		
	Farm Service Co., Framingham	F.	99.61	0.05	0.19	0.15	89.00	7/1940		
	JOSEPH HARRIS SEED CO., Rochester, N. Y.									
367	Timothy, No. 1876	L.	99.85	0.005	0.01	0.005	90.00	2/1940		
	Joseph Harris Seed Co., Cambridge	F.	99.62	0.19	0.14	0.05	91.00	7/1940		
	CHARLES C. HART SEED CO., Wethersfield, Conn.									
734	Timothy	L.	99.65	0.05	0.15	0.15	96.00	1/1939		
	Millis Coal & Grain Co., Millis	F.	99.71	0.05	0.14	0.10	91.00	7/1940		
1188	Timothy, No. G-330-208	L.	99.10	0.25	0.60	0.05	92.00	3/1940		
-	Dresser Hull Co., Lee	F.	99.57	0.18	0.11	0.14	84.00	7/1940	(a)	9 English Plantain
	HENRY HIRSCH & SONS, INC., Toledo, Ohio									
537	Fancy Timothy, No. 5555	L.	99.60	0.06	0.22	0.12	90.00	2/1940		
	Farm Service Co., North Attleboro	F.	99.51	0.03	0.13	0.33	88.00	7/1940		

	D. LANDRETH SEED CO., Bristol, Pa.								
782	Timothy, No. 397	L.	99.71	0.04	0.21	0.04	83.00	3/1940	
	United Co-operative Society, Maynard	F.	99.47	0.14	0.29	0.10	87.00	7/1940	
	JOHN D. LYON, Belmont, Mass.								
670	Timothy, No. 5571	L.	99.60	0.09	0.17	0.14	90.00	3/1940	
	Mackenzie & Winslow, Inc., Fall River	F.	99.44	0.11	0.22	0.23	89.00	7/1940	
	WM. G. SCARLETT & CO., Baltimore, Md.								
591	Timothy, No. 6071	L.	99.55	0.10	0.30	0.05	90.00	1/1940	14 English Plantain
	C. P. Washburn Co., Middleboro	F.	99.87	0.03	0.10	—	93.00	7/1940	
760	Timothy, No. 6055	L.	99.55	0.10	0.30	0.05	90.00	3/1940	
	Farmers Co-operative Exchange, Framingham	F.	99.45	0.10	0.40	0.05	89.00	7/1940	
803	Timothy, No. 17760	L.	99.60	0.20	—	—	90.00	2/1939	
	C. P. Washburn Co., Falmouth	F.	99.66	—	0.19	0.15	92.00	7/1940	
	THE STANFORD SEED CO., Buffalo, N. Y.								
707	Timothy, No. 5407	L.	99.65	0.10	0.15	0.10	90.00	1/1940	
	Milford Grain Co., Milford	F.	99.51	0.10	0.29	0.10	86.00	7/1940	
948	Timothy, No. 5273	L.	99.65	0.10	0.20	0.05	91.00	4/1940	
	C. J. Howland, North Brookfield	F.	99.82	0.05	0.10	0.03	87.00	7/1940	
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.								
350	Pan American, No. 685	L.	99.60	0.04	—	—	90.00	2/1939	
	Farm Service Co., Middleboro	F.	99.57	0.05	0.19	0.19	90.00	7/1940	
582	Pan American, No. 731	L.	99.60	0.05	—	—	90.00	8/1939	
	Treat Hardware Corp., Lawrence	F.	99.26	0.09	0.42	0.23	84.00	7/1940	
657	Pan American, No. 746	L.	99.60	0.05	0.22	0.13	90.00	2/1940	
	The Borden Grain Co., Taunton	F.	99.57	0.12	0.25	0.06	88.00	7/1940	
	VETCH								
	THOMAS W. EMERSON CO., Boston, Mass.								
785	Winter	L.	99.00	—	—	—	72.00	8/1939	
	United Co-operative Society, Maynard	F.	99.70	—	0.30	—	81-19	8/1940	
	THE STANFORD SEED CO., Buffalo, N. Y.								
647	Winter, No. 4380	L.	99.30	0.08	0.62	—	81.50-16	2/1940	
	W. N. Potter Grain Stores, Inc., Hadley	F.	100.00	—	—	—	82-17	5/1940	

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1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer when Other than Wholesale Distributor, and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test	Notes	Noxious Weed Seeds per Ounce
	VETCH—Concluded									
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.									
584	Spring, No. 9469	L.	99.82	—	0.14	0.04	94.00	1/1940		
	H. K. Webster Co., Lawrence	F.	99.67	0.03	0.15	0.15	97.00	5/1940		
585	Winter Hairy, No. 9455	L.	99.00	0.05	0.95	—	92.00	12/1939		
	H. K. Webster Co., Lawrence	F.	99.78	—	0.22	—	80–19†	6/1940		
	WHEAT									
	WM. G. SCARLETT & CO., Baltimore, Md.									
988	Wheat, Seed, No. 19086	L.	98.00	0.50	—	—	90.00	8/1939	**	
	The Continental Nurseries, Franklin	F.	99.24	0.02	0.70	0.04	87.00	7/1940		
	THE STANFORD SEED CO., Buffalo, N. Y.									
739	Spring, No. 4733	L.	99.00	0.10	—	—	94.00	3/1939	**	
	The Cutler Grain Co., Framingham	F.	98.66	0.02	1.13	0.19	92.00	8/1940		

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** Variety required by law, but not stated.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand Name and Ingredients of Each Mixture, Dealer when Other than Wholesale Distributor, and Place Collected	Ingredients, % Label	Ingredients, % Found	Germination, % Label	Germination, % Found		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Date of Test	Noxious Weed Seeds per Ounce
	MIXTURES											
	SECTION 261B—Not More than Two Kinds of Agricultural Seed											
	THE STANFORD SEED CO., Buffalo, N. Y.											
646	Timothy and Alsike Mixture, No. 4981					L.	—	0.55	0.60	0.70	2/1940	
	W. N. Potter Grain Stores, Inc., Hadley					F.	98.43	0.21	0.78	0.58	6/1940	
	Ingredients: Timothy	76.40	75.29	90.00	86.00							
	Alsike Clover	21.75	23.14	84–10	78–17							
	SPECIAL SEED MIXTURES											
	SECTION 261C—More than Two Kinds of Agricultural Seed											
	APOTHECARIES HALL CO., Waterbury, Conn.											
935	Blue Banner Lawn Seed Mixture					L.	—	0.35	8.65	—	3/1940	
	Horvitz Grain Co., New Bedford					F.	92.12	0.15	7.59	0.14	5/1940	
	Ingredients: Kentucky Bluegrass	32.09	31.33	82.00	77.00							
	Redtop	27.20	—	90.00	—							
	Astoria Bent	1.98	—	90.00	—							
	Domestic Ryegrass	29.73	30.15	91.00	95.00							
	Agrostis spp. (Redtop and Colonial Bent)	—	30.64	—	85.00							
	ATLANTIC DISTRIBUTING CO., Lowell, Mass.											
566	Riverside Park Lawn Grass Seed Mixture					L.	—	1.50	17.30	—	2/1938	
	Franklin Hardware & Plumbing Supply Co., Franklin					F.	83.14	0.59	15.68	0.59	5/1940	
	Ingredients: Kentucky Bluegrass	2.00	2.71	50.00	30.00†							
	Redtop	5.00	7.21d	85.00	93.00							
	Timothy	64.40	64.24	65.00	54.00†							
	Domestic Ryegrass	9.80	8.98	85.00	98.00							

† Indicates purity below, germination below, excessive weed seed, percentage of ingredient found deficient after adding proper tolerance, or excessive inert material, depending upon column in which it is found.

d Ingredient declared, but found excessive after adding proper tolerance to amount specified.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand Name and Ingredients of Each Mixture, Dealer when Other than Wholesale Distributor, and Place Collected	Ingredients, % Label	Ingredients, % Found	Germination, % Label	Germination, % Found		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Date of Test	Noxious Weed Seeds per Ounce
	SPECIAL SEED MIXTURES—Continued											
	ATLANTIC DISTRIBUTING CO.—Continued											
1081	Atlantic Park Lawn Grass Seed					L.	—	0.85	8.90	—	1/1937	
	Pittsfield Hardware & Supply Co., Pittsfield					F.	91.50	0.49	7.82	0.19	5/1940	
	Ingredients: Kentucky Bluegrass	*	34.94	*	37.00							
	Redtop	*	21.43	*	86.00							
	White Clover	*	6.27	*	70–1							
	Domestic Ryegrass	*	28.86	*	94.00							
	W. E. AUBUCHON CO., INC., Fitchburg, Mass.											
720	Evergreen Lawn Grass Seed Mixture					L.	—	0.34	4.04	0.69	4/1940	
	W. E. Aubuchon Co., Inc., Holliston					F.	92.59	0.50	6.84†	0.07	6/1940	4 English Plantain (a)
	Ingredients: Kentucky Bluegrass	1.72	0.86	80.00	79.00							
	Redtop	27.55	25.37	91.00	93.00							
	Timothy	60.27	62.01	90.00	76.00†							
	White Clover	5.49e	—	95.00	—							
	Red Clover	—	4.35f	—	70–2							
	BARTLETT & DOW CO., Lowell, Mass.											
897	Fort Hill Mixture					L.	—	1.52	8.50	0.98	3/1940	
						F.	89.86	0.78	8.88	0.48	7/1940	
	Ingredients: Kentucky Bluegrass	29.88	31.00	61.00	70.00							
	Redtop	40.70	39.56	94.00	95.00							
	White Clover	7.69	8.48	82.00	67–29†							
	Chewings Fescue	2.68	3.02	62.00	38.00†							
	Domestic Ryegrass	8.05	7.80	88.00	88.00							
	JOSEPH BRECK & SONS, Boston, Mass.											
165	Boston Park Mixture					L.	—	0.50	5.00	—	2/1940	
						F.	91.60	0.25	8.11†	0.04	5/1940	4 English Plantain (a)
	Ingredients: Kentucky Bluegrass	40.00	47.38	85.00	80.00							
	Redtop	38.00	—	90.00	—							
	Agrostis spp. (Redtop and Colonial Bent)	—	38.28	—	89.00							
	White Clover	—	1.74	—	33–61†							
	Meadow Fescue	6.00	4.20†	85.00	96.00							
	Paey's Ryegrass	6.00e	—	75.00	—							
	**Domestic Bent Grass and White Clover, not less than	6.00	—	90.00	—							

326	Setab Lawn Mixture					L.	—	Less than 1.00	6.00	—	2/1939	
	John E. Jordan Co., Plymouth					F.	91.08	0.35	8.27†	0.30	5/1940	
	Ingredients: Kentucky Bluegrass	12.50	10.80	80.00	75.00							
	Redtop	70.00	62.95†	90.00	93.00							
	Timothy	15.00	15.32	92.00	86.00							
	White Clover, less than	5.00	2.01	90.00	97-2							
	COMSTOCK, FERRE & CO., Wethersfield, Conn.											
808	Fine Lawn Mixture, No. 337					L.	—	0.35	4.88	—	3/1940	
	Harvey's Hardware Store, Falmouth					F.	95.78	0.20	3.90	0.12	6/1940	6 English Plantain (a)
	Ingredients: Kentucky Bluegrass	31.56	30.85	82.00	77.00							
	Redtop	21.89	—	92.00	—							
	White Dutch Clover	4.87	4.80	75.00	80-12							
	Chewings Fescue	7.87	7.57	70.00	52.00†							
	Astoria Bent	3.90	—	90.00	—							
	Domestic Ryegrass	24.69	26.03	93.00	90.00							
	Agrostis spp. (Redtop and Astoria Bent)	—	26.53	—	92.00							
	ARTHUR R. CONE, Buffalo, N. Y.											
346	Anchor Lawn Seed					L.	—	0.50	7.82	—	2/1940	
	Farm Service Co., Middleboro					F.	91.99	0.24	6.81	0.96	5/1940	
	Ingredients: Kentucky Bluegrass	33.52	29.30	87.00	86.00							
	Redtop	35.39	33.47	90.00	88.00							
	Timothy	4.98	10.09d	88.00	71.00†							
	White Clover	5.04	6.08	75-16	75-18							
	Domestic Ryegrass	11.94	13.05	92.00	96.00							

* Information required by law not given.
(a) Noxious weeds not declared but found excessive.
† Indicates purity below, germination below, excessive weed seed, percentage of ingredient found deficient after adding proper tolerance, or excessive inert material, depending upon column in which it is found.
e Ingredient declared but not found.
f Ingredient found but not declared.
** Term not specific.
d Ingredient declared but found excessive after adding proper tolerance to amount specified.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand Name and Ingredients of Each Mixture, Dealer when Other than Wholesale Distributor, and Place Collected	Ingredients, % Label	Ingredients, % Found	Germination, % Label	Germination, % Found		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Date of Test	Noxious Weed Seeds per Ounce
	SPECIAL SEED MIXTURES—Continued											
	THE ALBERT DICKINSON CO., Chicago, Ill.											
606	Club Green Lawn Seed Mixture					L.	—	0.90	13.00	—	1/1940	
	West Bridgewater Grain Co., West Bridgewater					F.	87.85	0.53	10.83	0.79	6/1940	
	Ingredients: Kentucky Bluegrass	25.40	28.87	78.00	72.00							
	Canada Bluegrass	8.50	5.81†	80.00	85.00							
	Redtop	28.50	30.28	85.00	93.00							
	Domestic Ryegrass	14.70	13.73	94.00	94.00							
	Poa trivialis	9.00	9.16	90.00	85.00							
683	Upland Pasture Mixture, No. 366556					L.	—	0.50	10.92	1.94	1/1940	
	Eastern Grain Co., Bridgewater					F.	86.23	0.46	10.07	3.24	6/1940	
	Ingredients: Kentucky Bluegrass	13.19	11.80	80.00	74.00							
	Redtop	11.72	12.32	90.00	87.00							
	Timothy	19.77	21.10	90.00	86.00							
	Alsike Clover	8.92	10.33	90.00	84–14							
	Domestic Ryegrass	14.91	13.62	94.00	95.00							
	Orchard Grass	8.16	7.12	85.00	86.00							
	Red Clover	9.97	9.94	90.00	88–2							
	DOUGHTEN SEED CO., Jersey City, N. J.											
297	L-3 Community Park Mixed Grass Seed AMS-8					L.	—	0.46	11.85	1.06	1/1940	
	Joseph Sordillo & Sons, Boston					F.	88.29	0.69	10.24	0.78	5/1940	3 English Plantain (a)
	Ingredients: Kentucky Bluegrass	4.00	4.73	75.00	74.00							
	Redtop	15.34	16.18	70.00	80.00							
	Timothy	27.45	33.39d	80.00	84.00							
	Domestic Ryegrass	39.84	33.99†	90.00	88.00							
	EASTERN SEED CO., New York City											
1130	Oxford Park Mixed Grass Seed N. Y., No. 400 AMS-47					L.	—	0.56	15.93	0.41	3/1940	
	Atlantic & Pacific Tea Co., Fitchburg					F.	84.38	0.50	14.13	0.99	7/1940	
	Ingredients: Redtop	4.38	4.05	90.00	92.00							
	Timothy	39.08	47.44d	80.00	94.00							
	Domestic Ryegrass	39.64	32.89†	90.00	88.00							

	THOMAS W. EMERSON CO., Boston, Mass.											
186	Early Green Grass Mixture #37					L.	—	0.28	4.90	—	1/1940	
						F.	94.70	0.31	3.90	1.09	4/1940	
	Ingredients: Kentucky Bluegrass	—	13.36	—	70.00							
	Redtop	40.54	38.20	91.00	89.00							
	White Clover	2.73	3.37	90.00	74–22†							
	Domestic Ryegrass	—	39.77	—	90.00							
	**Bluegrass	12.55	—	75.00	—							
	**Ryegrass	39.00	—	90.00	—							
570	Emerson's Special Mixed Lawn Seed					L.	—	0.35	2.60	—	1/1940	
	A. J. Cataldo Sons, Franklin					F.	96.77	0.32	2.52	0.39	6/1940	
	Ingredients: Kentucky Bluegrass	19.20	17.81	90.00	81.00†							
	R. S. Meadow	4.50	3.61	90.00	86.00							
	Redtop	60.76	—	94.00	—							
	White Clover	2.94	2.98	90.00	88–5							
	Chewings Fescue	4.90	3.90	85.00	70.00†							
	Astoria Bent	2.85	—	90.00	—							
	Velvet Bent	1.90	—	90.00	—							
	Agrostis spp. (Redtop, Astoria Bent, and Velvet Bent)	—	68.47	—	92.00							
	FIVE STAR SEED CO., Jersey City, N. J.											
444	Cambridge Lawn Seed Mixture					L.	—	1.00	17.00	—	*/*	
	S. Simons Hardware Co., Boston					F.	85.31	0.94	13.00	0.75	5/1940	
	Ingredients: Kentucky Bluegrass	*	18.80	*	65.00							
	Redtop	*	39.37	*	86.00							
	Domestic Ryegrass	*	25.15	*	92.00							
	White Clover	—	1.99	—	71–15							
445	Oxford Lawn Seed Mixture, No. 8550, Analysis A					L.	—	1.00	21.19	1.00	*/*	
	S. Simons Hardware Co., Boston					F.	87.16	1.08	11.37	0.39	5/1940	6 English Plantain (a)
	Ingredients: Domestic Ryegrass	*	32.40	*	95.00							
	Kentucky Bluegrass	*	5.45	*	63.00							
	Redtop	*	9.18	*	67.00							
	Timothy	*	38.88	*	67.00							
	White Clover	1.00	1.25	*	76–11							

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** Term not specific.

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1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand Name and Ingredients of Each Mixture, Dealer when Other than Wholesale Distributor, and Place Collected	Ingredients, % Label	Ingredients, % Found	Germination, % Label	Germination, % Found		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Date of Test	Noxious Weed Seeds per Ounce
	SPECIAL SEED MIXTURES—Continued											
	FREDONIA SEED CO., Fredonia, N. Y.											
300	Veltex Grass Seed Mixture					L.	—	0.90	14.75	—	1/1940	
	Don E. Bishop, Freetown					F.	85.35	0.50	13.98	0.17	5/1940	
	Ingredients: Kentucky Bluegrass	15.40	14.48	70.00	83.00							
	Redtop	20 73	21.42	75.00	78.00							
	Timothy	21.35	20.42	80.00	58.00†							
	White Clover	5.00	4.18	70–14	76–4							
	Domestic Ryegrass	21.87	24.85	80.00	87.00							
	GARFIELD WILLIAMSON, INC., New York City											
436	Continental Grass Seed Mixture, No. 18–4					L.	—	1.50	17.70	1.50	*/*	
	Grevis Hardware Co., Dorchester					F.	84.83	0.92	13 17	1.08	6/1940	14 English Plantain (a)
	Ingredients: Kentucky Bluegrass	*	4.17	*	70.00							
	Redtop	*	5.50	*	74.00							
	Timothy	*	66.50	*	83.00							
	Domestic Ryegrass	*	8.66	*	90.00							
	CHARLES C. HART SEED CO., Wethersfield, Conn.											
736	Evergreen Lawn Seed Mixture					L.	—	0.07	4.81	1.04	3/1940	96 English Plantain
	Millis Coal & Grain Co., Millis					F.	94.54	0.09	5.09	0.28	6/1940	1 English Plantain
	Ingredients: Kentucky Bluegrass	14.11	14.18	85.00	85.00							
	Redtop, Fancy	30.20	30.45	88.00	88.00							
	Timothy, Fancy	22.29	21.73	91.00	85.00							
	Domestic Ryegrass	26.85	28.18	95.00	97.00							
	OLIVER JOHNSON SEED CO., New York City											
437	Parkside Mixed Grass Seed L A 861					L.	—	1.00	11.96	1.00	1/1940	
	Milligan Hardware Co., Boston					F.	85.53	0.48	13.12	0.87	5/1940	22 English Plantain (a)
	Ingredients: Kentucky Bluegrass	8.00	9.13	60.00	63.00							
	Redtop, Fancy	13.68	12.26	90.00	61.00†							
	Timothy	58.41	57.14	80.00	75.00							
	White Clover	1.00	1.07	65–15	61–27							
	Domestic Ryegrass	4.95	5.93	90.00	87.00							

	LAKE SHORE SEED CO., Dunkirk, N. Y.											
230	Mixed Lawn Grass Seed					L.	—	*	*	—	*/*	
	Weir Grain Co., Taunton					F.	60.93	2.38	33.23	3.46	5/1940	23 English Plantain and 1 Brassica sp. (a)
	Ingredients: Redtop	*	21.56	*	42.00							
	Timothy	*	17.90	*	39.00							
	White Clover	*	10.19	*	56–5							
	Domestic Ryegrass	*	11.28	*	80.00							
	JOHN D. LYON, Belmont, Mass.											
516	Special Mixture Grass Seed					L.	97.87	0.20	1.93	—	2/1940	
	Central Hardware Co., Norwood					F.	97.89	0.26	1.79	0.06	5/1940	
	Ingredients: Kentucky Bluegrass	4.25	5.18	85.00	82.00							
	Redtop, Fancy	5.52	6.96	90.00	88.00							
	Timothy, Choice	57.42	57.89	90.00	92.00							
	White Clover	0.98	0.96	94.00	56–37†							
	Domestic Ryegrass	29.70	26.90	90.00	94.00							
	THE PAGE SEED CO., Greene, N. Y.											
952	Page's Marvelawn, No. L–14240					L.	92.23	0.53	7.10	0.14	8/1939	
	Fullam Hardware Co., North Brookfield					F.	92.89	0.56	6.39	0.16	6/1940	
	Ingredients: Kentucky Bluegrass	8.92	11.18	76.00	80.00							
	R. S. Meadow	17.32	13.26	88.00	88.00							
	Redtop	26.29	28.04	91.00	87.00							
	Timothy	15.63	16.77	91.00	89.00							
	White Clover	4.59	5.83	70–20	76–15							
	Meadow Fescue	4.88	4.87	76.00	75.00							
	Perennial Ryegrass	14.60	12.94	72.00	78.00							
	PEDIGREED SEED CO., New York City											
250	Marvel Lawn Mixture					L.	—	0.30	11.63	—	2/1940	
	Manuel B. Benevideo, Fall River					F.	88.92	0.56	10.41	0.11	7/1940	16 English Plantain (a)
	Ingredients: Kentucky Bluegrass	41.85	44.66	85.00	67.00†							
	Redtop	39.22	36.28	90.00	89.00							
	Chewings Fescue	7.00	7.98	75.00	41.00†							

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(a) Noxious weeds not declared but found excessive.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand Name and Ingredients of Each Mixture, Dealer when Other than Wholesale Distributor, and Place Collected	Ingredients, % Label	Ingredients, % Found	Germination, % Label	Germination, % Found		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Date of Test	Noxious Weed Seeds per Ounce
	SPECIAL SEED MIXTURES—Continued											
	PEDIGREED SEED CO.—Continued											
533	Special Mixture					L.	—	0.58	13.64	0.15	2/1940	
	Franklin Hardware Co., North Attleboro					F.	87.91	0.33	11.68	0.08	6/1940	
	Ingredients: Kentucky Bluegrass	2.12	2.33	80.00	78.00							
	Redtop, Fancy	9.10	10.18	90.00	85.00							
	Timothy	43.56	40.20	85.00	57.00†							
	Domestic Ryegrass	30.85	35.20	90.00	88.00							
	PHILADELPHIA SEED CO., Philadelphia, Pa.											
443	Grass Mixture, No. 139					L.	—	1.06	19.75	3.61	1/1940	
	Union Florist, Boston					F.	74.06	1.24	20.32	4.38	6/1940	
	Ingredients: Redtop	13.02	13.87	85.00	92.00							
	Timothy	37.81	37.15	80.00	74.00							
	Domestic Ryegrass	24.75	23.04	90.00	90.00							
916	Splendorlawn Mixed Grass Seed, No. 183					L.	—	0.58	14.92	—	1/1940	
	Hunt Hardware Co., Swampscott					F.	84.11	0.25	15.47	0.17	6/1940	
	Ingredients: Kentucky Bluegrass	8.80	8.72	60.00	61.00							
	Redtop	19.36	16.13	90.00	92.00							
	Timothy	27.55	28.89	84.00	78.00							
	Domestic Ryegrass	28.79	30.37	90.00	86.00							
	I. L. RADWANER SEED CO., New York City											
510	Grass Seed Mixture—Park Central Prime					L.	—	1.80	35.58	1.27	12/1939	
	Norwood Hardware & Supply Co., Norwood					F.	67.41	7.34†	25.08	0.17	5/1940	7 English Plantain (a)
	Ingredients: Kentucky Bluegrass	5.58	2.33†	79.00	26.00†							
	Canada Bluegrass	3.85	0.58†	87.00	87.00							
	Redtop	7.11	14.08d	44.00	38.00							
	Timothy	32.31	41.17d	41.00	50.00							
	Domestic Ryegrass	12.50	9.25†	88.00	70.00†							
511	Simeure Lawn Seed					L.	—	.40	4.76	1.00	2/1940	
	Norwood Hardware & Supply Co., Norwood					F.	88.74	0.45	8.11†	2.70	5/1940	

	Ingredients: Kentucky Bluegrass	40.50	34.41	85.00	45.00†							
	Redtop, Fancy	28.50	—	90.00	—							
	White Clover	7.00	7.75	90.00	68–11†							
	New Zealand Chewing's Fescue	7.84	6.76	80.00	37.00†							
	Astoria Cr. Bent	10.00	—	90.00	—							
	Agrostis spp. (Redtop and Astoria Bent)	—	39.82	—	89.00							
	ROSS BROS. CO., Worcester, Mass.											
499	Worcester Lawn Seed					L.	96.68	0.13	2.90	—	2/1940	
						F.	97.14	0.21	2.55	0.10	5/1940	
	Ingredients: Kentucky Bluegrass	41.24	42.37	82.00	80.00							
	Redtop	25.09	—	94.00	—							
	White Clover	1.74	1.71	93.00	80–11†							
	Astoria Bent	7.50	—	92.00	—							
	Domestic Ryegrass	21.00	21.77	94.00	92.00							
	Agrostis spp. (Redtop and Astoria Bent)	—	31.29	—	90.00							
	WM. G. SCARLETT & CO., Baltimore, Md.											
593	Maple Permanent Pasture Mixture					L.	—	2.00	20.00	1.00	2/1940	
	C. P. Washburn Co., Middleboro					F.	78.20	1.54	18.28	1.98	5/1940	108 EnglishPlantain (a)
	Ingredients: Kentucky Bluegrass	10.00	11.50	70.00	56.00†							
	Alsike Clover	8.00	8.38	75.00	70–18							
	Redtop	8.00	7.58	80.00	82.00							
	Timothy	20.00	20.95	80.00	72.00†							
	**Sweet Clover	9.00	—	80.00	—							
	Orchard Grass	8.00	8.53	75.00	86.00							
	Alfalfa	5.00	5.25	80.00	70–10†							
	Red Clover	9.00	6.25†	70.00	74–2							
	Yellow Blossom Sweet Clover	—	9.76	—	75–18							
747	Velvet Lawn Seed Mixture, No. 20038					L.	—	1.00	18.60	2.00	2/1940	
	A. G. Patch Co., Boston					F.	75.50	0.67	21.70	2.13	5/1940	
	Ingredients: Kentucky Bluegrass	21.50	21.45	75.00	72.00							
	Redtop	32.50	31.05	90.00	88.00							
	White Clover	4.80	4.25	80.00	75–21							
	**Ryegrass	19.60	—	90.00	—							
	Domestic Ryegrass	—	18.75	—	86.00							

(a) Noxious weeds not declared but found excessive.

† Indicates purity below, germination below, excessive weed seed, percentage of ingredient found deficient after adding proper tolerance, or excessive inert material, depending upon column in which it is found.

d Ingredient declared, but percentage found excessive after adding proper tolerance to amount specified.

** Term not specific.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand Name and Ingredients of Each Mixture, Dealer when Other than Wholesale Distributor, and Place Collected	Ingredients, % Label	Ingredients, % Found	Germination, % Label	Germination, % Found		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Date of Test	Noxious Weed Seeds per Ounce
	SPECIAL SEED MIXTURES—Concluded											
	THE STANFORD SEED CO., Buffalo, N. Y.											Approximately
740	Lawn Seed Mixture, No. 5001					L.	—	0.85	15.27	—	2/1940	20 English Plantain
	The Cutler Grain Co., Framingham					F.	85.73	0.73	13.54	—	6/1940	12 English Plantain
	Ingredients: Kentucky Bluegrass	17.22	14.18	80.00	78.00							
	Redtop	28.00	32.66	85.00	85.00							
	Timothy	14.85	12.26	85.00	88.00							
	White Clover	5.00	5.58	80.00	73–5							
	Domestic Ryegrass	18.81	21.05	85.00	95.00							
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.											
653	Quick Green Lawn Mixture, No. X112					L.	—	1.50	14.00	2.00	1/1940	
	The Hoyt Co., Dorchester					F.	86.45	0.38	12.94	0.23	6/1940	
	Ingredients: Redtop	13.00	16.11d	75.00	80.00							
	Timothy	29.50	32.30	85.00	91.00							
	White Clover	1.00	0.45	75.00	85–7							
	Domestic Ryegrass	39.00	37.59	90.00	95.00							
	F. H. WOODRUFF & SONS, Milford, Conn.											
728	Fine Green Lawn Grass Seed Mixture, No. G 2–27					L.	—	0.30	2.50	—	1/1940	
	Arthur E. Wills, Medfield					F.	95.27	0.26	2.80	1.67	6/1940	
	Ingredients: Kentucky Bluegrass	58.40	55.57	85.00	82.00							
	R. S. Meadow	6.50	6.22	88.00	86.00							
	Redtop	24.50	—	90.00	—							
	Colonial Bent	7.80	—	90.00	—							
	Agrostis spp. (Redtop and Colonial Bent)	—	33.48	—	94.00							
831	Cornell Pasture Mixture, No. G 339–6					L.	—	0.40	1.00	—	3/1940	
	Treat Hardware Corp., Lawrence					F.	98.52	0.38	0.94	0.16	6/1940	

	Ingredients: Aberystwyth Timothy	5.50	—	70.00	—						
	Kentucky Bluegrass	14.00	14.67	85.00	78.00						
	Other Timothy	33.80	—	90.00	—						
	Alsike Clover	4.95	5.06	90.00	80–17†						
	Alfalfa	19.80	19.29	90.00	76–9†						
	USVO Red Clover	9.90	11.03	90.00	87–9						
	Yel. Trefoil	4.95	4.77	90.00	72–12†						
	Ladino Clover	4.95	5.17	85.00	96–2						
	Timothy	—	38.53	—	89.00						
	S. D. WOODRUFF & SONS, Orange, Conn.										
755	Lawn Seed					L.	—	1.00	8.00	1.00	1/1940
	Van Duzer Hardware Co., Framingham					F.	94.37	0.87	4.57	0.19	6/1940
	Ingredients: Kentucky Bluegrass	14.00	15.56	*	75.00						
	Redtop	23.00	23.29	*	93.00						
	Timothy	22.00	22.34	*	88.00						
	White Clover	10.00	10.04	*	81–10						
	**Ryegrass	21.00	—	*	—						
	Domestic Ryegrass	—	23.14	—	90.00						
748	Shady Lawn Seed					L.	—	1.00	8.00	1.00	*/*
	Van Duzer Hardware Co., Framingham					F.	93.48	0.99	5.44	0.09	6/1940
	Ingredients: Kentucky Bluegrass	17.00	16.52	*	78.00						
	Redtop	26.00	25.14	*	96.00						
	Timothy	21.00	21.51	*	84.00						
	**Fescue	1.00	1.27	*	61.00						
	**Ryegrass	21.00	—	*	—						
	Orchard Grass	4.00	5.08	*	87.00						
	Domestic Ryegrass	—	23.96	—	91.00						

d Ingredient declared, but percentage found excessive after adding proper tolerance to amount specified.
† Indicates purity below, germination below, excessive weed seed, percentage of ingredient found deficient after adding proper tolerance, or excessive inert material, depending upon column in which it is found.
* Information required by law not given.
** Term not specific.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1940
	ASPARAGUS				
	Standard Germination 70%				
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
200	Mary Washington, No. 16010	70	2/1940	70	June
	JEROME B. RICE SEED CO., Cambridge, N. Y.				
1058	Mary Washington Frank Howard, Inc., Pittsfield			85	June
	BEANS				
	Standard Germinations Beans (Except Limas) 80% Beans (Limas) 70%				
	ASSOCIATED SEED GROWERS, INC., Cambridge, N. Y.				
971	Kentucky Wonder Cheekerboard Feed Store, Greenfield	85	3/1939	97	July
	ASSOCIATED SEED GROWERS, INC., New Haven, Conn.				
255F	Bountiful, No. 9090 W. G. Pearse & Co., Fall River	85	9/1939	94	June
	W. E. AUBUCHON CO., INC., Fitchburg, Mass.				
778	Burpee's Stringless Green Pod W. E. Aubuchon Co., Inc., Marlboro			90	July
	BARTLETT & DOW CO., Lowell, Mass.				
902F	Brazillian Butter			96	July
	JOSEPH BRECK & SONS, Boston, Mass.				
46F	Henderson's Bush Lima, No. 0320			97	June
47F	Dwarf Horticultural, No. 0263			96	June
798	Stringless Green Pod S. C. M. Packard & Co., Wareham			94	July
917	Bush Wax Improved Rust Proof J. R. Hughes, Inc., Lynn			82	July
	BROWNELL HARDWARE CO., Attleboro, Mass.				
415	Burpee's Stringless			92	July
	COBURN SEED & SUPPLY CO., Chelmsford, Mass.				
1117	Bountiful, No. 2940			98	July
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
306F	Bountiful Jerry's Hardware, New Bedford			94	June
434	Horticultural Bush Wm. F. Flynn & Co., Attleboro			96	June
534F	Improved Golden Wax Franklin Hardware Co., North Attleboro			88	July
804	Tendergreen Harvey's Hardware Store, Falmouth			96	July
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
1F	Stringless Valentine, No. 318	90	12/1939	95	June
2F	Geneva Red Kidney, No. 10819	85	12/1939	83	June
970	Stringless Tendergreen, No. 2c 1111 Greenfield Farmer's Co-operative Exchange, Greenfield	85	12/1939	88	July
	THOMAS W. EMERSON CO., Boston, Mass.				
81F	Bountiful			95	June
515	Kentucky Wonder Wax Norwood Hardware & Supply Co., Norwood			96	July

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1940
	BEANS—Continued				
	THOMAS W. EMERSON CO.—Continued				
529	Pencil Pod Black Wax J. William Gove, Inc., Foxboro			96	July
812	Burpee Green Pod Charles T. Eastman, Hardware, Falmouth			85	July
	FERRY-MORSE SEED CO., Detroit, Mich.				
467F	Bountiful Six Weeks Allen Hardware Co., Needham			87	July
	FILER SEED CO., Blackfoot, Idaho				
265F	Surecrop, No. 1316 Jose J. d'Arruda, Fall River	94	12/1939	98	June
	FRASER'S, Wellesley, Mass.				
452F	Surecrop Wax	Approx. 95	1/1940	96	June
466	Bountiful	Approx. 90	1/1940	96	June
	G. W. GARDINER & SONS, Fall River, Mass.				
123F	Burpee's Stringless Green Pod			94	June
	THOMAS J. GREY CO., Boston, Mass.				
68F	Bountiful			93	June
	JOSEPH HARRIS SEED CO., Rochester, N. Y.				
356F	Stringless Black Valentine, No. 2166 Joseph Harris Seed Co., Cambridge	99		99	June
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
228F	Burpee's Stringless Green Pod Pierce Hardware Co., Taunton	90	12/1939	96	June
332F	Golden Wax Plymouth Supply Co., Plymouth	90	1/1940	86	July
351	Surecrop Wax Saunders Hardware & Paint Co., Middleboro	90	1/1940	99	June
614	Worcester Horticultural Waite Hardware Co., Worcester			83	July
	LAKE SHORE SEED CO., Dunkirk, N. Y.				
229F	Golden Wax Weir Grain Co., Taunton	80	12/1939	50‡	June
	D. LANDRETH SEED CO., Bristol, Pa.				
336F	French Horticultural Phillips, Bates & Co., Hanover	90	1/1940	88	June
478F	Landreth's Stringless Green Pod, No. 3915 Elwood Adams, Inc., Worcester			94	July
725	Golden Wax Westwood Hardware & Supply Co., Westwood			85	July
745	Landreth's Top Notch Golden Wax Goodman Hardware Co., Framingham			80	July
	MICHAEL-LEONARD SEED CO., Chicago, Ill.				
1094	Webber Wax or Cracker Jack Wax The Mutual Plumbing & Heating Co., Amherst			91	July
1138	Bountiful United Farmer's Co-operative, Fitchburg	90	12/1939	98	July
	JOSEPH W. NICKLAS, New Bedford, Mass.				
400F	Burpee's Stringless Green Pod			90	July

‡Below Standard and below guarantee.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1940
	BEANS—Concluded				
	THE PAGE SEED CO., Greene, N. Y.				
354F	Improved Goddard J. H. Fairbanks Co., Bridgewater	92	1940	91	June
608	Pencil Pod Black Wax Stone Hardware Co., Brockton			95	July
1030	Golden Wax R. F. Burke, Williamsburg			89	July
	PERRY SEED CO., Boston, Mass.				
21F	Bountiful, No. 369-W	96	1/1940	93	June
22F	French Horticultural, No. 626			89	June
43	Perry's Wonderful, No. 580			91	June
	JEROME B. RICE SEED CO., Cambridge, N. Y.				
573	Improved Golden Wax Leonard N. Jaques & Sons, Milford			71†	July
1060	Giant Stringless Green Pod Frank Howard, Inc., Pittsfield			93	July
	ROSS BROS. CO., Worcester, Mass.				
480F	Pencil Pod Black Wax, Lot No. 5			94	July
481F	French Dwarf Horticultural, No. 62			89	July
986	Giant Green Pod C. W. Robinson, Brimfield			76†	July
	SARGENT'S GRAIN & SUPPLY CO., Brockton, Mass.				
697	Lowe's Champion			90	July
	JOSEPH SORDILLO & SONS, Boston, Mass.				
292F	Italian Special Shell			91	June
	THORNTON & CROUCH, Lawrence, Mass.				
838	Pencil Pod Black Wax			95	July
	F. H. WOODRUFF & SONS, Milford, Conn.				
339F	Bountiful Farm Service Co., Middleboro			95	June
375F	French Horticultural Middlesex County Farm Bureau, Waltham	95	1/1940	90	July
726	Pencil Pod Black Wax Arthur E. Wills, Medfield			96	July
770	Red Kidney A. C. Lamson, Inc., Marlboro			60†(c)	July
	S. D. WOODRUFF & SONS, Orange, Conn.				
419F	Improved Golden Wax, No. 1996 Monroe's Seed Market, Attleboro	Approx. 70	1/1940	18‡	July
750	Bountiful, No. 1999 Van Duzer Hardware Co., Framingham	90	1/1940	67‡	July
885	Surecrop Palm Grain Co., Lowell			93	July

† Below Standard.
(c) Wholesaler claims and retailer admits this seed not purchased during the current season.
‡ Below Standard and below guarantee.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Date	Germination Found %	Month of Test 1940
	BEETS				
	Standard Germination 65%				
	ASSOCIATED SEED GROWERS, INC., New Haven, Conn.				
261F	Detroit Dark Red, No. 78545	70	10/1939	70	May
	W. G. Pearse & Co., Fall River				
	JOSEPH BRECK & SONS, Boston, Mass.				
48F	Early Wonder, No. 0116			84	May
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
307F	Early Wonder			88	May
	Jerry's Hardware, New Bedford				
320F	Detroit Dark Red			79	May
	A. E. Wordell, New Bedford				
1000	Edmond's Early Turnip			68	May
	J. L. Nason, Westboro				
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
3F	Crosby's Early Wonder, No. 718	90	12/1939	88	May
	THOMAS W. EMERSON CO., Boston, Mass.				
82F	Crosby's Egyptian			78	May
731	Edmond's Blood			77	May
	W. K. Gilmore & Sons, Medfield				
810	Detroit Dark Red			52†(e)	May
	Charles T. Eastman, Hardware, Falmouth				
	FERRY-MORSE SEED CO., Detroit, Mich.				
248F	Detroit Dark Red			79	May
	Manuel B. Benevideo & Son, Fall River				
	FRASER'S, Wellesley, Mass.	Approx.			
454F	Boston Crosby	75	1/1940	84	May
	G. W. GARDINER & SONS, FALL RIVER				
125F	Early Wonder			86	May
126F	Crosby's Egyptian			80	May
	THE GOOD SEED CO., Fredonia, N. Y.				
393F	Early Blood			85	May
	Union St. School, Middleboro				
	THOMAS J. GREY CO., Boston, Mass.				
69F	Crosby's Egyptian			72	May
	JOSEPH HARRIS SEED CO., Rochester, N. Y.				
363F	Crosby's Egyptian (Harris' Special Strain, No. 431)	84	1940	79	May
	Joseph Harris Seed Co., Cambridge				
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
217F	Early Wonder	82	12/1939	76	May
	Pierce Hardware Co., Taunton				
	HYGRADE SEED CO., INC., Fredonia, N. Y.				
383F	Detroit Dark Red			84	May
	Union St. School, Middleboro				
	D. LANDRETH SEED CO., Bristol, Pa.				
338F	Crosby's Egyptian			78	May
	Phillips, Bates & Co., Hanover				
477	Detroit Dark Red #3941			85	May
	Elwood Adams, Inc., Worcester				

† Below Standard.
(e) Wholesaler claims and retailer admits this seed not purchased during the current season.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Date	Germination Found %	Month of Test 1940
	BEETS—Concluded				
	MICHAEL-LEONARD SEED CO., Chicago, Ill.				
502F	Detroit Dark Red W. E. Aubuchon Co., Inc., Worcester			81	May
719	Early Egyptian W. E. Aubuchon Co., Inc., Worcester			68	May
	JOSEPH W. NICKLAS, New Bedford, Mass.				
406F	Detroit Dark Red			82	May
	NORTHRUP, KING & CO., Minneapolis, Minn.				
217F	Early Wonder or Crosby's Egyptian F. W. Woolworth Co., Boston			72	May
	THE PAGE SEED CO., Greene, N. Y.				
1029	Early Blood Turnip R. F. Burke, Williamsburg			93	May
	PERRY SEED CO., Boston, Mass.				
23F	Detroit Dark Red, No. 1176			78	May
	ROSS BROS. CO., Worcester, Mass.				
482F	Early Wonder, No. 125			72	May
999	Crosby's Early Egyptian Everett I. Swan, Westboro			72	May
	F. H. WOODRUFF & SONS, Milford, Conn.				
342F	Early Wonder, No. 1-157 Farm Service Co., Middleboro			89	May
382F	Crosby's Egyptian Middlesex County Farm Bureau, Waltham	68	1/1940	68	May
769	Detroit Dark Red A. E. Lamson, Inc., Marlboro			83	May
	S. D. WOODRUFF & SONS, Orange, Conn.				
420F	Detroit Dark Red, No. 1732 Monroe's Seed Market, Attleboro	Approx. 70	1/1940	74	May
859	Early Wonder, No. 1731 Herman F. Davis, Merrimac	75	1/1940	76	May
	ZWAAN VAN DER MOLEN, Voorburg, Holland				
275F	Early Wonder Jose J. d'Arruda, Fall River			88	May
	BROCCOLI				
	Standard Germination 75%				
	ASSOCIATED SEED GROWERS, INC., Cambridge, N. Y.				
1079	Calabrese Checkerboard Feed Store, Pittsfield	85	4/1940	87	July
	JOSEPH BRECK & SONS, Boston, Mass.				
49F	Italian Green Sprouting, No. 0125			83	July
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
317F	Italian Green Sprouting A. E. Wordell, New Bedford			77	July
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
4F	Calabrese, No. 4 A 13717 (Green Sprouting)	80	12/1939	51‡	July
	THOMAS W. EMERSON CO., Boston, Mass.				
83F	Green Sprouting			85	July
	D. LANDRETH SEED CO., Bristol, Pa.				
1151	Italian or Early Green Calabrese H. Newell & Co., Shelburne Falls			80	July

‡ Below Standard and below guarantee.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1940
	BROCCOLI—Concluded				
663	MICHAEL-LEONARD SEED CO., Chicago, Ill. Italian Green Sprouting Pierce Hardware Co., Taunton	80	3/1940	83	July
296F	JOSEPH SORDILLO & SONS, Boston Calabrese			92	July
839	THORNTON & CROUCH, Lawrenee, Mass. Calabrese			88	July
675	F. H. WOODRUFF & SONS, Milford, Conn. Calabrese, Green Sprouting J. O. Neill Supply Co., Fall River			82	July
274F	ZWAAN VAN DER MOLEN, Voorburg, Holland Italian Green Sprouting Jose J. d'Arruda, Fall River			88	July
	BRUSSELS SPROUTS				
	Standard Germination 70%				
204	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass. Long Island Improved, No. 1010 Eastern States Farmers' Exchange, Waltham	90	12/1939	90	July
325	LAKE SHORE SEED CO., Dunkirk, N. Y. **Brussel Sprouts Bliss Hardware Co., Plymouth	65	12/1939	50‡	May
	CABBAGE				
	Standard Germination 75%				
258F	ASSOCIATED SEED GROWERS, INC., New Haven, Conn. Golden Acre, No. 78231 W. G. Pearse & Co., Fall River	80	8/1939	85	July
904	BARTLETT & DOW CO., Lowell, Mass. Mammoth Red Rock			87	June
66F	JOSEPH BRECK & SONS, Boston, Mass. Danish Ballhead, Tall Stem, No. 0131			99	July
562	Early Jersey Wakefield Franklin Hardware & Plumbing Supply Co., Franklin			79	July
866	Early Jersey Wakefield Farmer's Feed & Supply Co., Amesbury			79	July
413	BROWNELL HARDWARE CO., Attleboro, Mass. Warren Stone Mason			1†	June
242F	W. ATLEE BURPEE CO., Philadelphia, Pa. Copenhagen Trading Post, Somerset			87	July
316F	COMSTOCK, FERRE & CO., Wethersfield, Conn. Copenhagen Market A. E. Wordell, New Bedford			88	July
5F	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass. Short Stem Ballhead, No. 410	90	12/1939	89	July
84F	THOMAS W. EMERSON CO., Boston, Mass. Copenhagen Market			95	June

** Variety required by law.
‡ Below Standard and below guarantee.
† Below Standard.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1940
	CABBAGE—Continued				
	THOMAS W. EMERSON CO.—Continued				
995	Danish Ballhead Farm & Garden Supply Co., Uxbridge			79	July
1026	Early Jersey Wakefield E. J. O'Donnell Grain Co., Florence			96	July
	FERRY-MORSE SEED CO., Detroit, Mich.				
424F	Copenhagen Market Monroe's Seed Market, Attleboro			90	July
	FRASER'S, Wellesley, Mass.				
459	Danish Ballhead	Approx. 90	1/1940	84	July
	G. W. GARDINER & SONS, Fall River, Mass.				
127F	Copenhagen Market			91	July
	THE GOOD SEED CO., Fredonia, N. Y.				
334F	Danish Ballhead Elmwood School, East Bridgewater			91	July
	J. J. H. GREGORY & SON, Marblehead, Mass.				
910	Copenhagen Market			75	July
	THOMAS J. GREY CO., Boston, Mass.				
70F	Golden Acre			90	July
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
224F	Golden Acre Pierce Hardware Co., Taunton	86	12/1939	84	July
617	Danish Ballhead Waite Hardware Co., Worcester			75	July
1182	Copenhagen Market F. H. Turner & Co., Great Barrington	90	1/1940	89	July
	LAKE SHORE SEED CO., Dunkirk, N. Y.				
251F	Early Jersey Wakefield Manuel B. Benevideo & Son, Fall River	75	12/1939	87	May
	H. V. LAWRENCE, Falmouth, Mass.				
816	Golden Acre			88	July
	LINCOLN SQUARE PAINT & HARDWARE CO., Worcester, Mass.				
476	Selected Early Jersey Wakefield, No. 3852 Elwood Adams, Inc., Worcester			59†	July
	MICHAEL-LEONARD SEED CO., Chicago, Ill.				
522	Improved American Savoy Schofield Hardware Co., North Attleboro			84	July
	NORTHRUP, KING & CO., Minneapolis, Minn.				
198F	Early Jersey Wakefield F. W. Woolworth Co., Boston			75	June
	PERRY SEED CO., Boston, Mass.				
24F	Golden Acre, No. 1804			85	July
	ROSS BROS. CO., Worcester, Mass.				
487	Copenhagen Market, No. 130			90	June
998	Premium Flat Dutch Everett I. Swan, Westboro			76	July
	SARGENT'S GRAIN & SUPPLY CO., Brockton, Mass.				
693	Early Jersey Wakefield			77	July
	J. B. VARICK CO., Manchester, N. H.				
871	Golden Acre L. L. Peavey, Inc., Newburyport			73†	August

† Below Standard.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Date	Germination Found %	Month of Test 1940
	CABBAGE—Concluded				
	F. H. WOODRUFF & SONS, Milford, Conn.				
1032	Danish Ballhead ..... Peirson Hardware Co., Pittsfield			60†(c)	June
343F	Golden Acre ..... Farm Service Co., Middleboro			88	July
	S. D. WOODRUFF & SONS, Orange, Conn.	Approx.			
425F	Golden Acre, No. 1744 ..... Monroe's Seed Market, Attleboro	70	12/1939	91	June
636	Danish Ballhead ..... Waskiewicz Bros., Hadley			37†	August
	ZWAAN VAN DER MOLEN, Voorburg, Holland				
270F	Golden Acre ..... Jose J. d'Arruda, Fall River			92	July
	CARROTS				
	Standard Germination 55%				
	ASSOCIATED SEED GROWERS, INC., New Haven, Conn.				
262F	Danvers Half Long, No. 87028 ..... W. G. Pearse & Co., Fall River	67	8/1939	56§	June
	JOSEPH BRECK & SONS, Boston, Mass.				
51F	Chantenay, No. 0120			55	June
797	Danvers Half Long ..... S. C. M. Packard & Co., Wareham			55	June
	BROWNELL HARDWARE CO., Attleboro, Mass.				
414	Danvers Half Long			67	June
	W. ATLEE BURPEE CO., Philadelphia, Pa.				
241F	Chantenay ..... Trading Post, Somerset			82	June
	COBURN SEED & SUPPLY CO., Chelmsford, Mass.				
1119	Hutchinson, No. 3061			70	June
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
309F	Long Orange ..... Jerry's Hardware, New Bedford			63	June
321F	Danvers Half Long ..... A. E. Wordell, New Bedford			85	June
807	Hutchinson ..... Harvey's Hardware Store, Falmouth			69	June
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
8F	Danvers (Red Cored), No. 618	56		53†	June
	THOMAS W. EMERSON CO., Boston, Mass.				
86F	Hutchinson			77	June
513	Danvers Half Long ..... Norwood Hardware & Supply Co., Norwood			51†(c)	July
	FERRY-MORSE SEED CO., Detroit, Mich.				
1141	Hutchinson ..... Deerfield Hardware Co., South Deerfield			69	June
	FRASER'S, Wellesley, Mass.	Approx.			
455F	Danvers Half Long	70	1/1940	65	June

† Below Standard.
(c) Wholesaler claims and retailer admits this seed not purchased during the current season.
§ Above Standard but below guarantee.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1940
	CARROTS—Concluded				
	G. W. GARDINER & SONS, Fall River, Mass.				
128F	Danvers Half Long			69	June
129F	Chantenay			60	June
	THE GOOD SEED CO., Fredonia, N. Y.				
395F	Long Orange Union St. School, Middleboro			68	June
	THOMAS J. GREY CO., Boston, Mass.				
71F	Hutchinson			68	June
	JOSEPH HARRIS SEED CO., Rochester, N. Y.				
370F	Hutchinson, No. 477 Joseph Harris Seed Co., Cambridge	72	1940	66	July
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
517F	Orange, Half Long Danvers or Rubicon Central Hardware Co., Norwood	76	2/1940	80	June
615F	Danvers Long Orange Waite's Hardware Co., Worcester			66	June
	HYGRADE SEED CO., INC., Fredonia, N. Y.				
384F	Red Cored Chantenay Union St. School, Middleboro			58	June
	D. LANDRETH SEED CO., Bristol, Pa.				
470F	Danvers Half Long or Rubicon, No. 3964 Elwood Adams, Inc., Worcester			65	June
713	Hutchinson Wm. H. Casey, Inc., Milford			55	June
	MICHAEL-LEONARD SEED CO., Chicago, Ill.				
501F	Chantenay W. E. Aubuchon Co., Inc., Worcester			31†	July
	JOSEPH W. NICKLAS, New Bedford, Mass.				
403	Rice's Coreless			83	June
	THE PAGE SEED CO., Greene, N. Y.				
1028	Danvers Half Long R. F. Burke, Williamsburg			69	June
	PERRY SEED CO., Boston, Mass.				
25F	Chantenay, No. 2059			70	June
	J. B. RICE, JR., INC., Shushan, N. Y.				
612F	Danvers Half Long Costello's, Inc., Worcester	60 or better	9/1939	65	June
	ROSS BROS. CO., Worcester, Mass.				
483F	Danvers Half Long, No. 126			80	June
	F. H. WOODRUFF & SONS, Milford, Conn.				
145F	Chantenay Sanford Hardware Co., Fall River			61	June
381F	Hutchinson, No. 1-6172 Middlesex County Farm Bureau, Waltham	67	1/1940	70	June
	S. D. WOODRUFF & SONS, Orange, Conn.				
421F	Danvers Half Long, No. 2015 Monroe's Seed Market, Attleboro	67	1/1940	68	June
638F	True Hutchinson, No. 2055 Waskiewicz Bros. Hadley	Approx. 80	1/1940	82	June
765	Chantenay, No. 1734 Marlboro Hardware & Plumbing Co., Marlboro	67	1/1940	61	June

† Below Standard.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1940
	CAULIFLOWER				
	Standard Germination 75%				
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
6F	Super Snowball (Ea. Forcing), No. 5118	80	12/1939	77	July
	JOSEPH BRECK & SONS, Boston, Mass.				
50F	White Bouquet, No. 7000			86	July
	W. ATLEE BURPEE CO., Philadelphia, Pa.				
244F	Snowball Trading Post, Somerset			85	June
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
219F	Early Snowball Pierce Hardware Co., Taunton	91	12/1939	74‡	July
	LAKE SHORE SEED CO., Dunkirk, N. Y.				
677	Snowball Berzin Market, Bridgewater	75	1939	58‡	August
	D. LANDRETH SEED CO., Bristol, Pa.				
880	Early Snowball Frank P. Mills, Campello			84	July
	JOSEPH SORDILLO & SONS, Boston, Mass.				
291F	Snowball			84	June
	F. H. WOODRUFF & SONS, Milford, Conn.				
674	Snowball J. O. Neill Supply Co., Fall River			76	June
	CELERY				
	Standard Germination 55%				
	JOSEPH BRECK & SONS, Boston, Mass.				
563	Giant Pascal Franklin Hardware & Plumbing Supply Co., Franklin			55(c)	May
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
310F	Boston Market Ricard Grain Co., New Bedford			67	April
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
7F	Golden Plume Jersey, No. 3010	75	12/1939	78	May
210	Pascal (Cal. Strain), No. 19 C 1625 Eastern States Farmers' Exchange, Waltham	70	12/1939	59§	June
	THOMAS W. EMERSON CO., Boston, Mass.				
85F	Golden Plume			69	April
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
225F	New Giant Pascal Pierce Hardware Co., Taunton	79	12/1939	58§	April
	LAKE SHORE SEED CO., Dunkirk, N. Y.				
654	Golden Hearted Self Blanching Larry's Lunch, Bridgewater	55	1939	79	May
	D. LANDRETH SEED CO., Bristol, Pa.				
711	Giant Pascal Wm. H. Casey, Inc., Milford			58	May
	PERRY SEED CO., Boston, Mass.				
30F	Pascal F			58	April
42	Giant Pascal Special, No. 2326			71	April
	THORNTON & CROUCH, Lawrence, Mass.				
836	Giant Pascal			72	May

‡ Below Standard and below guarantee.
(c) Wholesaler claims this seed not purchased during the current season.
§ Above Standard but below guarantee.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1940
	CHICORY				
	Standard Germination 65%				
	JOSEPH SORDILLO & SONS, Boston, Mass.				
290	Plain Leaf			67	July
	CORN				
	Standard Germination 75%				
	ASSOCIATED SEED GROWERS, INC., New Haven, Conn.				
254F	Whipple's Early Yellow, No. 36042 W. G. Pearse & Co., Fall River	90	12/1939	95	June
	ASSOCIATED SEED GROWERS, INC., Cambridge, N. Y.				
864	Golden Bantam Checkerboard Feed Store, Amesbury	90	12/1939	96	June
974	Golden Cross Bantam Hybrid Checkerboard Feed Store, Greenfield	90	12/1939	97	June
	BARTLETT & DOW CO., Lowell, Mass.				
905	Golden Giant			86	June
	JOSEPH BRECK & SONS, Boston, Mass.				
52F	Golden Sunshine, No. 0288			95	June
155F	Breck's Mass. Golden Bantam, No. 0253			98	June
565	Whipple's Early Yellow Franklin Hardware & Plumbing Supply Co., Franklin			94	June
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
266F	Bantam Evergreen Jose J. d'Arruda, Fall River	91	1/1940	99	June
315F	Golden Hummer A. E. Wordell, New Bedford			98	June
805	Golden Gem Harvey's Hardware Store, Falmouth			97	June
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
9F	Golden Cross Bantam, No. 14510	95	12/1939	98	June
	THOMAS W. EMERSON CO., Boston, Mass.				
87F	Kingscrost			97	June
571	Golden Sunrise A. J. Cataldo Sons, Franklin			93	June
1195	Golden Bantam Phelan Hardware Co., Lee			96	June
	FERRY-MORSE SEED CO., Detroit, Mich.				
249F	Whipple's Yellow Manuel B. Benevideo & Son, Fall River			98	June
	FRASER'S, Wellesley, Mass.	Approx.			
453	Golden Cross Bantam	90	1/1940	91	June
	G. W. GARDINER & SONS, Fall River, Mass.				
130F	Whipple's Yellow			98	June
	THOMAS J. GREY CO., Boston, Mass.				
72F	Golden Sunshine			96	June
	JOSEPH HARRIS SEED CO., Rochester, N. Y.				
357F	Seneca "60," No. 1214 Joseph Harris Seed Co., Cambridge	99		99	June
361F	Early Bancross 39, No. 1190 Joseph Harris Seed Co., Cambridge	99	1940	99	June

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1940
	CORN—Concluded				
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
226F	Golden Hummer Pierce Hardware Co., Taunton	90	1/1940	89	June
331F	Golden Giant Plymouth Supply Co., Plymouth	90	1/1940	92	June
729	Whipple's Yellow W. K. Gilmore & Sons, Medfield			89	June
1044	Early Golden Bantam Berkshire Hardware Co., Pittsfield			93	June
	D. LANDRETH SEED CO., Bristol, Pa.				
337F	Golden Bantam Phillips, Bates & Co., Hanover			95	June
784	Bantam Evergreen, No. 490 United Co-operative Society, Maynard	86	2/1940	95	June
	MICHAEL-LEONARD SEED CO., Chicago, Ill.				
524	Golden Bantam Schofield Hardware Co., North Attleboro	87	12/1939	96	June
	JOSEPH W. NICKLAS, New Bedford, Mass.				
405F	Early Bancross			98	June
	THE PAGE SEED CO., Greene, N. Y.				
355F	Bantam Evergreen J. H. Fairbanks Co., Bridgewater	95	1940	91	June
609	Golden Bantam Stone Hardware Co., Brockton			54†(c)	June
872	Whipple's Early Yellow Knight Grain Co., Newburyport			92	June
1172	Golden Evergreen The Clifford Hardware Co., Lenox			95	June
	PERRY SEED CO., Boston, Mass.				
26F	Sencross Hybrid, No. 2611			91	June
	ROSS BROS. CO., Worcester, Mass.				
495	Golden Bantam, No. 28			97	June
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.				
827	Golden Bantam, No. 7211 H. K. Webster Co., Lawrence	95	1/1940	98	June
	F. H. WOODRUFF & SONS, Milford, Conn.				
340F	Marcross Farm Service Co., Middleboro			96	June
376F	Golden Cross Bantam, No. 12969 Middlesex County Farm Bureau, Waltham			97	June
1179	Golden Early Market, No. 13523 Platt & Goslee, Great Barrington			94	June
	S. D. WOODRUFF & SONS, Orange, Conn.				
418F	Bantam Evergreen, No. 1797 Monroe's Seed Market, Attleboro	Approx. 87	1/1940	92	June
767	Golden Giant, No. 1809 R Marlboro Hardware & Plumbing Co., Marlboro			97	June
857	Whipple's Early Yellow, No. 1980 Herman F. Davis, Merrimac	90	1/1940	95	June

† Below Standard.
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1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1940
	CUCUMBER				
	Standard Germination 80%				
	ASSOCIATED SEED GROWERS, INC., New Haven, Conn.				
263F	A & C, No. 70205	80	10/1939	80	July
	W. G. Pearse & Co., Fall River				
	JOSEPH BRECK & SONS, Boston, Mass.				
53F	Davis Perfect, No. 0143			87	July
1112	White Spine			90	July
	Conant & Co., Littleton, Mass.				
	BROWNELL HARDWARE CO., Attleboro, Mass.				
412	Davis Perfect			96	July
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
535	Improved White Spine			72†	August
	Franklin Hardware Co., North Attleboro				
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
10F	Straight 8, No. 610	85	12/1939	90	July
	THOMAS W. EMERSON CO., Boston, Mass.				
88F	Davis Perfect			86	July
514	White Spine			94	July
	Norwood Hardware & Supply Co., Norwood				
	FERRY-MORSE SEED CO., Detroit, Mich.				
1142	Chicago Pickling Westerfield			98	July
	Deerfield Hardware Co., South Deerfield				
	G. W. GARDINER & SONS, Fall River, Mass.				
131F	Early Fortune			86	July
	THE GOOD SEED CO., Fredonia, N. Y.				
396	White Spine			97	July
	Union St. School, Middleboro				
	THOMAS J. GREY CO., Boston, Mass.				
73F	Woodruff's Hybrid	90	12/1939	85	July
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
616	Davis Perfect			95	July
	Waite Hardware Co., Worcester				
1046	Improved Long Green			87	July
	Berkshire Hardware Co., Pittsfield				
	LAKE SHORE SEED CO., Dunkirk, N. Y.				
918	Improved Long Green	80	12/1939	47‡	August
	North Shore Hardware & Paint Co., Lynn				
	D. LANDRETH SEED CO., Bristol, Pa.				
474	Davis Perfect, No. 3792			87	July
	Elwood Adams, Inc., Worcester				
	MICHAEL-LEONARD SEED CO., Chicago, Ill.				
273F	Leonard's Special Dark Green			95	July
	Jose J. d'Arruda, Fall River				
718	Early Improved White Spine			95	July
	W. E. Aubuchon Co., Inc., Holliston				
	PARAMOUNT SEED CO., Stockton, Calif.				
267F	A & C or Colorado	92		94	July
	Jose J. d'Arruda, Fall River				
	PERRY SEED CO., Boston, Mass.				
27F	Perry's Perfection, No. 2986			98	July

† Below Standard.
‡ Below Standard and below guarantee.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1940
	CUCUMBER—Concluded				
605	JEROME B. RICE SEED CO., Cambridge, N. Y. Davis Perfect Shurtleff Hardware Co., Middleboro			76†	July
488	ROSS BROS. CO., Worcester, Mass. Long Green, No. 131			95	July
144F	F. H. WOODRUFF & SONS, Milford, Conn. Ace Sanford Hardware Co., Fall River	92	11/1939	80§	July
1085	Boston Pickling Pittsfield Hardware & Plumbing Supply Co., Pittsfield			97	July
422	S. D. WOODRUFF & SONS, Orange, Conn. White Spine, No. 1313 Monroe's Seed Market, Attleboro	Approx. 90	1/1940	93	July
884	Woodruff Ace or Long Green, No. 1551 Palm Grain Co., Lowell	90	1/1940	90	July
	GARDEN CRESS				
	Standard Germination 40%				
701	LAKE SHORE SEED CO., Dunkirk, N. Y. Curled or Pepper Grass J. A. Belanger, Islington	75	12/1939	39‡	August
1034	F. H. WOODRUFF & SONS, Milford, Conn. Fine Curled Peirson Hardware Co., Pittsfield			0†(c)	August
	DANDELION				
	Standard Germination 45%				
568	THOMAS W. EMERSON CO., Boston, Mass. Thick Leaf A. J. Cataldo Sons, Franklin			0†	May
712	D. LANDRETH SEED CO., Bristol, Pa. Improved Thick Leaf Wm. H. Casey, Inc., Milford			7†	May
294	JOSEPH SORDILLO & SONS, Boston, Mass. Thick Leaf			69	April
846	F. H. WOODRUFF & SONS, Milford, Conn. French Common Cultivated D. J. Mahoney, Bradford			0†(c)	May
	EGGPLANT				
	Standard Germination 60%				
203	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass. Black Beauty, No. 2018	90	12/1939	91	May
102	THOMAS W. EMERSON CO., Boston, Mass. N. Y. Improved			74	May
906	LAKE SHORE SEED CO., Dunkirk, N. Y. Early Large Purple T. A. Whelan, Lowell	60	12/1939	44‡	June

† Below Standard.
§ Above Standard but below guarantee.
‡ Below Standard and below guarantee.
(c) Wholesaler claims and retailer admits this seed not purchased during the current season.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1940
	EGGPLANT—Concluded				
	PERRY SEED CO., Boston, Mass.				
28	N. Y. Improved, No. 3089			79	May
	ROSS BROS. CO., Worcester, Mass.				
496	N. Y. Improved, No. 137			84	May
	ENDIVE				
	Standard Germination 70%				
	JOSEPH BRECK & SONS, Boston, Mass.				
328	Green Curled John E. Jordon Co., Plymouth			90	June
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
314	Broad Leaved Bavarian A. E. Wordell, New Bedford			97	June
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
206	Green Curled Ruffec, No. 718	85	12/1939	91	June
	LAKE SHORE SEED CO., Dunkirk, N. Y.				
982	Green Curled H. C. Maddox, Brimfield	70	12/1939	79	June
	MICHAEL-LEONARD SEED CO., Chicago, Ill.				
504	Broad Leaved Batavian W. E. Aubuchon Co., Inc., Worcester			89	June
	KALE				
	Standard Germination 75%				
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
211	Blue Scotch, No. 17 A 13717 Eastern States Farmers' Exchange, Waltham	74	12/1939	79	July
	JERONIMO PEREIRA, Lisbon, Portugal				
927	Couve Penouda, espanhola grande A. Camara, New Bedford			84	July
	KOHLRABI				
	Standard Germination 75%				
	LAKE SHORE SEED CO., Dunkirk, N. Y.				
907	Early White Vienna T. A. Whelan, Lowell	75	12/1939	58‡	July
	F. H. WOODRUFF & SONS, Milford, Conn.				
847	Early White Vienna			76	July
	LEEK				
	Standard Germination 60%				
	PERRY SEED CO., Boston, Mass.				
45	Monstrous Carentan, No. 3280			78	June
	F. H. WOODRUFF & SONS, Milford, Conn.				
1033	American Flag Peirson Hardware Co., Pittsfield			0†(c)	July

‡ Below Standard and below guarantee.
† Below Standard.
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1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1940
	LETTUCE				
	Standard Germination 80%				
	ASSOCIATED SEED GROWERS, INC., New Haven, Conn.				
260F	N. Y. Wonderful, No. 58885	90	7/1939	89	April
	W. G. Pearse & Co., Fall River				
	BARTLETT & DOW CO., Lowell, Mass.				
903	Iceberg			97	May
	JOSEPH BRECK & SONS, Boston, Mass.				
54F	Black Seeded Tennisball, No. 9029			77†	April
329	Big Boston			87	April
	John E. Jordon Co., Plymouth				
	BROWNELL HARDWARE CO., Attleboro, Mass.				
411	Iceberg			51†	April
	W. ATLEE BURPEE CO., Philadelphia, Pa.				
243F	Black Seeded Simpson			95	April
	Trading Post, Somerset				
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
313F	Grand Rapid			76†	April
	Ricard Grain Co., New Bedford				
429	Boston Market			87	April
	Wm. F. Flynn & Co., Attleboro				
545	Simpson's Early Curled			50†(c)	May
	Mansfield Lumber Co., Mansfield				
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
11F	N. Y. #12, No. 718	95	12/1939	95	April
199	N. Y. #515, No. 20 B 5717	85	12/1939	85	April
	Eastern States Farmers' Exchange, Waltham				
	THOMAS W. EMERSON CO., Boston, Mass.				
89F	Imperial, No. 44			100	April
512	Big Boston			88	April
	Norwood Hardware & Supply Co., Norwood				
527	Prize Head			1†(c)	April
	J. Wm. Gove Co., Inc., Foxboro				
569	Black Seeded Tennisball			81	April
	A. J. Cataldo Sons, Franklin				
1194	Iceberg			97	June
	Phelan Hardware Co., Lee				
	FERRY-MORSE SEED CO., Detroit, Mich.				
247F	N. Y. #12			50†(c)	April
	Manuel B. Benevideo & Son, Fall River				
	FOSTER FARRAR CO., Northampton, Mass.				
1021	Imperial 847			97	June
	FRASER'S, Wellesley, Mass.	Approx.			
460	Iceberg—Improved Strain	85	1/1940	81	April
	G. W. GARDINER & SONS, Fall River, Mass.				
132F	N. Y. #12			93	April
	THE GOOD SEED CO., Fredonia, N. Y.				
394	Black Seeded Simpson			97	April
	Union St. School, Middleboro				

† Below Standard.
(c) Wholesaler claims and retailer admits this seed not purchased during the current season.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1940
	LETTUCE—Continued				
	J. J. H. GREGORY & SON, Marblehead, Mass.				
913	N. Y. #12			97	May
	THOMAS J. GREY CO., Boston, Mass.				
74F	May King	91	12/1939	93	April
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
220F	N. Y. #12	90	12/1939	89	April
	Pierce Hardware Co., Taunton				
1041	Big Boston			72†(c)	June
	Berkshire Hardware Co., Pittsfield				
1067	Hanson Improved			0†(c)	June
	Carr Hardware Co., Pittsfield				
	BUDD D. HAWKINS, Reading, Vt.				
984	Early Prize-head			86	June
	H. C. Maddox, Brimfield				
	HYGRADE SEED CO., INC., Fredonia, N. Y.				
385F	Iceberg			85	April
	Union St. School, Middleboro				
387F	Black Seeded Simpson			96	April
	Union St. School, Middleboro				
	D. LANDRETH SEED CO., Bristol, Pa.				
473	Big Boston, No. 39122			30†(c)	April
	Elwood Adams, Inc., Worcester				
648	Iceberg			95	April
	Frank L. Whitcomb, Amherst				
	H. V. LAWRENCE, Falmouth, Mass.				
815	Cal. Iceberg			99	May
	MICHAEL-LEONARD SEED CO., Chicago, Ill.				
503	Iceberg			60†	April
	W. E. Aubuchon Co., Inc., Worcester				
521	Big Boston			34†	April
	Schofield Hardware Co., North Attleboro				
	THE PAGE SEED CO., Greene, N. Y.				
1189	Iceberg			61†	June
	Dresser Hull Co., Lee				
	GEORGE R. PEDRICK & SON, Pedricktown, N. J.				
989	Big Boston			41†	June
	The Continental Nurseries, Franklin				
	PERRY SEED CO., Boston, Mass.				
38F	Cabbage Head, No. 3382			76†	April
39F	Unrivalled White Seed, No. 3622			93	April
	JEROME B. RICE SEED CO., Cambridge, N. Y.				
574	Prizehead Early			94	April
	Leonard N. Jaques & Sons, Milford				
	J. B. RICE, JR., INC., Shushan, N. Y.				
613	Iceberg	60 or better	9/1939	97	April
	Costello's, Inc., Worcester				
	ROSS BROS. CO., Worcester, Mass.				
489	N. Y. #12, No. 132			98	April
699	Black Seeded Tennisball			64†(c)	May
	Task Hardware Co., Brockton				
	SARGENT'S GRAIN & SUPPLY CO., Brockton, Mass.				
695	Big Boston			67†	May

† Below Standard.
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1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1940
	LETTUCE—Concluded				
	THORNTON & CROUCH, Lawrence, Mass.				
835	Imperial 847			97	May
	F. H. WOODRUFF & SONS, Milford, Conn.				
344F	True Iceberg Farm Service Co., Middleboro			83	April
578	N. Y. or Wonderful Milford Hardware Co., Milford			88	April
	S. D. WOODRUFF & SONS, Orange, Conn.				
754	New York Head Van Duzer Hardware Co., Framingham Center			97	May
	MUSKMELON				
	Standard Germination 75%				
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
430	Bender's Surprise Wm. F. Flynn & Co., Attleboro			72†	August
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
202	Bender's Surprise, No. 9010	70	1/1940	81	July
	PARAMOUNT SEED CO., Stockton, Calif.				
269	Hale's Best, No. 36 Jose J. d'Arruda, Fall River	90	1940	93	July
	F. H. WOODRUFF & SONS, Milford, Conn.				
849	Sugar Rock (Honey Rock) D. J. Mahoney, Bradford			84	July
	ONIONS				
	Standard Germination 70%				
	ASSOCIATED SEED GROWERS, INC., Cambridge, N. Y.				
1080	Southport White Globe Checkerboard Feed Store, Pittsfield			99	June
	JOSEPH BRECK & SONS, Boston, Mass.				
55F	Yellow Globe Danvers, No. 0184			79	June
	BROWNELL HARDWARE CO., Attleboro, Mass.				
416	White Portugal			30†	July
	W. ATLEE BURPEE CO., Philadelphia, Pa.				
525	Prizetaker Yellow Globe Schofield Hardware Co., North Attleboro			19†	June
	COBURN SEED & SUPPLY CO., Chelmsford, Mass.				
1120	Yellow Globe Danvers, No. 2169			82	June
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
302F	White Portugal Jerry's Hardware, New Bedford			27†(e)	June
544	Yellow Globe Danvers Mansfield Lumber Co., Mansfield			94	June
	CROSMAN SEED CORP., East Rochester, N. Y.				
1147	Yellow Globe Danvers Montgomery Ward & Co., Greenfield	85		87	June
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
12F	Southport White Globe, No. 22 A 1317	75	12/1939	77	June

† Below Standard.
(e) Wholesaler claims and retailer admits this seed not purchased during the current season.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1940
	ONIONS—Continued				
	THOMAS W. EMERSON CO., Boston, Mass.				
90F	Danvers Yellow Globe			96	June
809	Yellow Globe Danvers Charles T. Eastman, Hardware, Falmouth			41†(c)	June
	FRASER'S, Wellesley, Mass.				
456F	Yellow Globe Danvers	Approx. 90	1/1940	96	June
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
1039	White Globe Berkshire Hardware Co., Pittsfield			81	June
1066	Large Red Wethersfield Carr Hardware Co., Pittsfield			0†	June
	LAKE SHORE SEED CO., Dunkirk, N. Y.				
301F	Large Yellow Danvers F. R. Gurney, East Freetown	70	12/1939	7‡	May
	D. LANDRETH SEED CO., Bristol, Pa.				
471F	Yellow Globe Danvers, No. 39142 Elwood Adams, Inc., Worcester			83	June
882	Prizetaker Frank P. Mills, Campello			89	June
	MICHAEL-LEONARD SEED CO., Chicago, Ill.				
1093	Southport Yellow Globe Mutual Plumbing & Heating Co., Amherst			69†	June
	JOSEPH W. NICKLAS, New Bedford, Mass.				
404F	Yellow Globe Danvers			97	June
	THE PAGE SEED CO., Greene, N. Y.				
1173	Yellow Globe Danvers The Clifford Hardware Co., Lenox			71	June
1190	Yellow Globe Danvers Dresser-Hull Co., Lee			70	June
	PERRY SEED CO., Boston, Mass.				
29F	Danvers Yellow Globe, No. 4517			88	June
	JEROME B. RICE SEED CO., Cambridge, N. Y.				
603	Yellow Globe Danvers Shurtleff Hardware Co., Middleboro			60†	June
	ROSS BROS. CO., Worcester, Mass.				
484F	Yellow Globe Danvers, No. 127			91	June
	JOSEPH SORDILLO & SONS, Boston, Mass.				
293F	White Sweet			54†	June
	STERLING SEED CO., Minneapolis, Minn.				
1048	Yellow Globe Danvers J. J. Newberry Co., Pittsfield			95	June
	F. H. WOODRUFF & SONS, Milford, Conn.				
1082	Southport White Globe Pittsfield Hardware & Plumbing Supply Co., Pittsfield			92	June
1180	Yellow Globe Danvers Platt & Goslee, Great Barrington			84	June
	S. D. WOODRUFF & SONS, Orange, Conn.				
423F	Danvers Yellow, No. 2051 Monroe's Seed Market, Attleboro	86	1/1940	83	June

† Below Standard.
(c) Wholesaler claims and retailer admits this seed not purchased during the current season.
‡ Below Standard and below guarantee.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Date	Germination Found %	Month of Test 1940
	ONIONS—Concluded				
	S. D. WOODRUFF & SONS—Continued				
637	Japanese, No. 2106 ..... Waskiewicz Bros., Hadley	Approx. 85	1/1940	80	June
640	Japanese, No. 2051 ..... Waskiewicz Bros., Hadley	85		82	June
	PARSLEY				
	Standard Germination 60%				
	BROWNELL HARDWARE CO., Attleboro, Mass.				
410	Double Curled			76	May
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
201	Plain Leaf Italian, No. 23 C 1718	75	12/1939	79	May
	THOMAS W. EMERSON CO., Boston, Mass.				
95	Paramount			88	May
	FERRY-MORSE SEED CO., Detroit, Mich.				
246	Extra Triple Curled ..... Manuel B. Benevideo & Son, Fall River			85	May
	G. W. GARDINER & SONS, Fall River, Mass.				
136	Plain Leaf			83	May
	LAKE SHORE SEED CO., Dunkirk, N. Y.				
531	Double Curled ..... J. L. Belanger, Islington	60	12/1939	21‡	May
	JEROME B. RICE SEED CO., Cambridge, N. Y.				
604	Moss Curled ..... Shurtleff Hardware Co., Middleboro			59†	May
	PARSNIP				
	Standard Germination 60%				
	JOSEPH BRECK & SONS, Boston, Mass.				
56F	Market Garden, No. 0313			68	May
330	Long Smooth White ..... John E. Jordon Co., Plymouth			50†(c)	May
	BROWNELL HARDWARE CO., Attleboro, Mass.				
409	Hollow Crown			80	May
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
308F	Champion Hollow Crown ..... Jerry's Hardware, New Bedford			74	May
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
13F	Improved Hollow Crown, No. 618	75	12/1939	81	May
	THOMAS W. EMERSON CO., Boston, Mass.				
91F	Hollow Crown			93	May
744	Hollow Crown ..... Goodman Hardware Co., Framingham			23†(c)	May
	EMPIRE SEED CO., Fredonia, N. Y.				
1114	Hollow Crown ..... Chelmsford Square Hardware Co., Chelmsford			72	May
	FRASER'S, Wellesley, Mass.				
457F	Hollow Crown	85	1/1940	89	May

‡ Below Standard and below guarantee.
† Below Standard.
(c) Wholesaler claims and retailer admits this seed not purchased during the current season.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1940
	PARSNIP—Concluded				
	FREDONIA SEED CO., Fredonia, N. Y.				
1165	Hollow Crown ..... W. N. Potter Grain Stores, Charlemont			84	May
	J. J. H. GREGORY & SON, Marblehead, Mass.				
912	Hollow Crown			68	May
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
518F	Hollow Crown ..... Central Hardware Co., Norwood			82	May
	BUDD D. HAWKINS, Reading, Vt.				
772	Improved Hollow Crown ..... A. C. Lamson, Inc., Marlboro			51†	May
	LAKE SHORE SEED CO., Dunkirk, N. Y.				
232F	Hollow Crown ..... Weir Grain Co., Taunton	60	12/1939	73	May
	D. LANDRETH SEED CO., Bristol, Pa.				
469F	Bloomsdale Reselected ..... Lincoln Sq. Paint & Hardware Co., Worcester			84	May
	MICHAEL-LEONARD SEED CO., Chicago, Ill.				
500F	Improved Hollow Crown ..... W. E. Aubuchon Co., Inc., Worcester			0†	May
	THE PAGE SEED CO., Greene, N. Y.				
611	Hollow Crown ..... Stone Hardware Co., Brockton			71	May
776	Hollow Crown ..... A. C. Lamson, Inc., Marlboro	Approx. 65	1939	81	May
	JEROME B. RICE SEED CO., Cambridge, N. Y.				
600	Hollow Crown ..... Shurtleff Hardware Co., Middleboro			84	May
	ROSS BROS. CO., Worcester, Mass.				
485F	Hollow Crown, No. 128			91	May
	STERLING SEED CO., Minneapolis, Minn.				
1047	Hollow Crown ..... J. J. Newberry Co., Pittsfield			65	May
	F. H. WOODRUFF & SONS, Milford, Conn.				
378F	All American, No. 1-9101 ..... Middlesex County Farm Bureau, Waltham	64	1/1940	65	May
	S. D. WOODRUFF & SONS, Orange, Conn.				
753	Improved Hollow Crown ..... Van Duzer Hardware Co., Framingham			85	May
	PEAS				
	Standard Germination 80%				
	ASSOCIATED SEED GROWERS, INC., New Haven, Conn.				
253	World Record, No. 92001 ..... W. G. Pearse & Co., Fall River	85	11/1939	93	April
	W. E. AUBUCHON CO., INC., Fitchburg				
715	Telephone ..... W. E. Aubuchon Co., Inc., Holliston			98	May
	BARTLETT & DOW CO., Lowell, Mass.				
901	Thomas Laxton			98	May
	JOSEPH BRECK & SONS, Boston, Mass.				
64	Laxtonian, No. 0241			96	April

† Below Standard.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1940
	PEAS—Continued				
	JOSEPH BRECK & SONS—Continued				
327	Improved Telephone John E. Jordon Co., Plymouth			94	April
435	Nott's Excelsior Adams Hardware Co., Inc., Dorchester			89	April
	BROWNELL HARDWARE CO., Attleboro, Mass.				
408	Sutton's Excelsior			84	April
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
305	World Record Jerry's Hardware, New Bedford			91	April
546	Improved Stratagem Mansfield Lumber Co., Mansfield			92	April
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
208	Thomas Laxton, No. 10618 Eastern States Farmers' Exchange, Waltham	85	12/1939	90	April
969	World Record, No. 310 Greenfield Farmer's Co-operative Exchange, Greenfield	95	2/1940	93	May
	THOMAS W. EMERSON CO., Boston, Mass.				
101	Improved Gradus			98	April
528	Laxtonian J. William Gove, Inc., Foxboro			91	April
730	Telephone W. K. Gilmore & Sons, Medfield			98	May
992	Sutton Henry Patrick Co., Hopedale			91	May
	FERRY-MORSE SEED CO., Detroit, Mich.				
468	Gradus Allen Hardware Co., Needham			96	April
746	Nott's Excelsior Dwarf Union Florist Co., Boston			95	May
	FILER SEED CO., Blackfoot, Idaho				
264	World Record, No. 1130 Jose H. d'Arruda, Fall River	89	10/1939	90	April
	FRASER'S, Wellesley, Mass.				
461	Improved Telephone	Approx. 90		94	April
	G. W. GARDINER & SONS, Fall River				
124	Gradus			90	April
	JOSEPH HARRIS SEED CO., Rochester, N. Y.				
358	Laxton's Progress, No. 908 Joseph Harris Seed Co., Cambridge	96		98	April
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
227	Little Marvel Pierce Hardware Co., Taunton	90	12/1939	83§	April
333	Nott's Excelsior Plymouth Supply Co., Plymouth	90	1/1940	86	April
352	Thomas Laxton Saunders Hardware & Paint Co., Middleboro			92	April
735	Sutton's Excelsior Millis Coal & Grain Co., Millis	90	1/1940	91	May

§ Above Standard but below guarantee.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1940
	PEAS—Continued				
	THOMAS J. GREY CO., Boston, Mass.				
79	Early Morn	92	2/1940	94	April
	D. LANDRETH SEED CO., Bristol, Pa.				
335	Blue Bantam Phillips, Bates & Co, Hanover			87	April
710	World Record Wm. H. Casey, Inc., Milford			96	May
	H. V. LAWRENCE, Falmouth, Mass.				
817	Tall Telephone			95	May
	MICHAEL-LEONARD SEED CO., Chicago, Ill.				
523	Gradus Schofield Hardware Co., North Attleboro	90	12/1939	86	May
1137	World Record United Co-operative Farmer's Association, Fitchburg	90	12/1939	96	June
	JOSEPH W. NICKLAS, New Bedford, Mass.				
401	Gradus			97	April
	THE PAGE SEED CO., Greene, N. Y.				
353	Laxtonian J. H. Fairbanks Co., Bridgewater	85	1940	98	April
607	Gradus Stone Hardware Co., Brockton			87	April
786	Dark Podded Telephone Seder & Gruber, Maynard	Approx. 85	1/1940	94	May
	GEORGE R. PEDRICK & SON, Pedricktown, N. J.				
991	Nott's Excelsior The Continental Nurseries, Franklin			96	May
	PERRY SEED CO., Boston, Mass.				
31	Thomas Laxton, No. 5300			98	April
32	Laxton's Progress, No. 5726			94	April
	JEROME B. RICE SEED CO., Cambridge, N. Y.				
572	Nott's Excelsior Leonard N. Jacques & Sons, Milford			86	April
	ROSS BROS. CO., Worcester, Mass.				
492	Blue Bantam, No. 47			96	April
698	Telephone Task Hardware Co., Brockton			93	May
	SARGENT'S GRAIN & SUPPLY CO., Brockton, Mass.				
696	Laxton's Progress			96	May
	THORNTON & CROUCH, Lawrence, Mass.				
837	Laxton's Progress			89	May
	F. H. WOODRUFF & SONS, Milford, Conn.				
341	Laxton's Progress Farm Service Co., Middleboro			92	April
374	Improved Telephone, No. 13614 Middlesex County Farm Bureau, Waltham	90	1/1940	91	April
	S. D. WOODRUFF & SONS, Orange, Conn.				
417	Sutton's Excelsior, No. 2027 Monroe's Seed Market, Attleboro	Approx. 90	1940	96	April
749	Laxton's Progress, No. 2077 Van Duzer Hardware Co., Framingham		1/1940	91	May

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Date	Germination Found %	Month of Test 1940
	PEAS—Concluded				
	S. D. WOODRUFF & SONS—Continued				
856	Laxton's Superb, No. 2026	90	1/1940	75‡	June
	Herman F. Davis, Merrimac				
944	Thomas Laxton, No. 1877	90	12/1938	82§	June
	Feldman's, Leicester				
	PEPPERS				
	Standard Germination 55%				
	ASSOCIATED SEED GROWERS, INC., New Haven, Conn.				
256	California Wonder, No. 78157	85	10/1939	77§	May
	W. G. Pearse & Co., Fall River				
	JOSEPH BRECK & SONS, Boston, Mass.				
57F	Large Bell, No. 0193			69	May
	W. ATLEE BURPEE CO., Philadelphia, Pa.				
245F	World Beater			90	May
	Trading Post, Somerset				
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
323F	California Wonder			90	May
	A. E. Wordell, New Bedford				
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
14F	World Beater, No. 7410	75	12/1939	74	May
	THOMAS W. EMERSON CO., Boston, Mass.				
92F	World Beater			73	May
	G. W. GARDINER & SONS, Fall River, Mass.				
137F	Portuguese Hot			69	May
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
222F	World Beater	85	1/1940	73§	May
	Pierce Hardware Co., Taunton				
	LAKE SHORE SEED CO., Dunkirk, N. Y.				
233F	Red Bell or Bull Nose	55	12/1939	24‡	May
	Weir Grain Co., Taunton				
	MICHAEL-LEONARD SEED CO., Chicago, Ill.				
1092	Bell or Bull Nose			83	May
	The Mutual Plumbing & Heating Co., Amherst				
	NORTHRUP, KING & CO., Minneapolis, Minn.				
215F	Large Bell or Bull Nose			55	May
	F. W. Woolworth Co., Boston				
	PERRY SEED CO., Boston, Mass.				
34F	California Wonder, No. 5021			90	May
	ROSS BROS. CO., Worcester, Mass.				
490	Bell or Bull Nose, No. 133			65	May
	JOSEPH WHITE CO., Bridgeton, N. J.				
271F	California Wonder, No. 1332	96	11/1939	92	May
	Jose J. d'Arruda, Fall River				
	F. H. WOODRUFF & SONS, Milford, Conn.				
143F	California Wonder	81	10/1939	82	May
	Sanford Hardware Co., Fall River				
1083	Long Red Cayenne			74	May
	Pittsfield Hardware & Plumbing Supply Co., Pittsfield				

‡ Below Standard and below guarantee.
§ Above Standard but below guarantee.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1940
	PUMPKIN				
	Standard Germination 75%				
	ASSOCIATED SEED GROWERS, INC., Cambridge, N. Y.				
973	Conn. Field Checkerboard Feed Store, Greenfield	90	1/1939	94	July
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
1183	Small Sugar F. H. Turner & Co., Great Barrington			76	June
	MICHAEL-LEONARD SEED CO., Chicago, Ill.				
716	Small Sugar W. E. Aubuchon Co., Inc., Holliston			76	July
	ROSS BROS. CO., Worcester, Mass.				
494	Small Sugar, No. 136			91	June
	F. H. WOODRUFF & SONS, Milford, Conn.				
955	Conn. Field Sibley Hardware Co., Ware			96	June
	RADISH				
	Standard Germination 75%				
	BARTLETT & DOW CO., Lowell, Mass.				
900	Improved Scarlet Globe			86	May
	JOSEPH BRECK & SONS, Boston, Mass.				
58F	Scarlet Globe, No. 0355			90	April
867	French Breakfast Farmer's Feed & Supply Co., Amesbury			93	May
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
319F	Early Scarlet Globe A. E. Wordell, New Bedford			81	April
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
15F	Early Scarlet Globe, No. 1010	85	12/1939	86	April
	THOMAS W. EMERSON CO., Boston, Mass.				
93F	Cavalier			91	April
1192	Early Scarlet White Tipped Phelan Hardware Co., Lee			86	June
	FOSTER FARRAR CO., Northampton, Mass.				
1020	French Breakfast			95	June
	FRASER'S, Wellesley, Mass.				
462	Special Early Scarlet Globe	90	1/1940	89	April
	G. W. GARDINER & SONS, Fall River, Mass.				
133F	Scarlet Globe			86	April
	THE GOOD SEED CO., Fredonia, N. Y.				
299F	Early Scarlet Turnip Elmwood School, East Bridgewater			80	April
	J. J. H. GREGORY & SON, Marblehead, Mass.				
909	French Breakfast			78	May
	THOMAS J. GREY CO., Boston, Mass.				
75F	Scarlet Globe			78	April
	JOSEPH HARRIS SEED CO., Rochester, N. Y.				
359F	Cavalier, No. 738 Joseph Harris Seed Co., Cambridge	88		90	April
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
1042	Early Scarlet Globe Berkshire Hardware Co., Pittsfield			94	June

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1940
	RADISH—Concluded				
	CHARLES C. HART SEED CO.—Continued				
1072	Long Black Spanish Carr Hardware Co., Pittsfield			62†(c)	June
	BUDD D. HAWKINS, Reading, Vt.				
773	Early Scarlet Turnip, White Tipped A. C. Lamson, Inc., Marlboro			98	May
	HYGRADE SEED CO., INC., Fredonia, N. Y.				
386F	Early Scarlet Globe Union St. School, Middleboro			97	April
	D. LANDRETH SEED CO., Bristol, Pa.				
650	Early Scarlet Turnip, White Tipped Frank L. Whitcomb, Amherst			87	April
879	Early Scarlet Globe Frank P. Mills, Campello	90 or better	11/1939	86	May
	MICHAEL-LEONARD SEED CO., Chicago, Ill.				
777	Early Scarlet Globe W. E. Aubuchon, Inc., Marlboro			71†	June
	PERRY SEED CO., Boston, Mass.				
33F	Scarlet Globe, No. 5821			90	April
40	Crimson Giant, No. 5816			96	April
	JEROME B. RICE SEED CO., Cambridge, N. Y.				
575	Early Scarlet Turnip White Tipped Leonard N. Jaques & Sons, Milford			89	April
	ROSS BROS. CO., Worcester, Mass.				
497	Early Scarlet Globe, No. 138			91	April
	THORNTON & CROUCH, Lawrence, Mass.				
834	Crimson Giant			76	May
	F. H. WOODRUFF & SONS, Milford, Conn.				
146F	Early Scarlet Globe Sanford Hardware Co., Fall River	Approx. 87	11/1939	88	April
727	Sparkler—White Tipped Arthur E. Wills, Medfield			91	May
1128	French Breakfast, No. 7-889 Fitchburg Hardware Co., Fitchburg	95	11/1938	91	June
1178	White Icicle Platt & Goslee, Great Barrington			97	June
	S. D. WOODRUFF & SONS, Orange, Conn.				
768	Scarlet Globe, No. 1879 R Marlboro Hardware & Plumbing Co., Marlboro	90	1/1940	90	May
	RUTABAGA				
	Standard Germination 75%				
	ASSOCIATED SEED GROWERS, INC., Cambridge, N. Y.				
975	American Purple Top Checkerboard Feed Store, Greenfield	80	1/1940	97	July
	JOSEPH BRECK & SONS, Boston, Mass.				
59F	American Improved Purple Top, No. 0227			92	July
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
318F	Improved American Purple Top A. E. Wordell, New Bedford			67†	August

† Below Standard.
(c) Wholesaler claims and retailer admits this seed not purchased during the current season.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1940
	RUTABAGA—Concluded				
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
16F	L. I. Neckless Purple Top, No. 5119	85	12/1939	83	July
	THOMAS W. EMERSON CO., Boston, Mass.				
94F	American Purple Top			75	July
994	Macomber Farm & Garden Supply Co., Uxbridge			92	July
	LAKE SHORE SEED CO., Dunkirk, N. Y.				
676	American Purple Top Berzin Market, Bridgewater	75	1939	18‡	July
	D. LANDRETH SEED CO., Bristol, Pa.				
649	Improved Yellow Flesh Frank L. Whitcomb, Amherst			75	July
	MICHAEL-LEONARD SEED CO., Chicago, Ill.				
223F	Macomber Pierce Hardware Co., Taunton	84	2/1940	84	July
717	Improved American Purple Top W. E. Aubuchon Co., Inc., Holliston			67†	July
	JOSEPH W. NICKLAS, New Bedford, Mass.				
402F	Macomber			94	July
	F. H. WOODRUFF & SONS, Milford, Conn.				
142F	Macomber Sanford Hardware Co., Fall River			80	July
345F	American Purple Top Farm Service Co., Middleboro			95	July
	S. D. WOODRUFF & SONS, Orange, Conn.				
883	Long Island Improved, No. 1930 Palm Grain Co., Lowell	66	1/1940	50‡	July
	SALSIFY				
	Standard Germination 75%				
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
205	Mammoth Sandwich Island, No. 619	85	12/1939	94	July
	D. LANDRETH SEED CO., Bristol, Pa.				
1152	Sandwich Island H. Newell & Co., Shelburne Falls			93	July
	F. H. WOODRUFF & SONS, Milford, Conn.				
953	Mammoth Sandwich Island Sibley Hardware Co., Ware			94	July
	SPINACH				
	Standard Germination: Common 60%				
	ASSOCIATED SEED GROWERS, INC., Cambridge, N. Y.				
972	Bloomsdale Savoy Checkerboard Feed Store, Greenfield	85	1/1940	96	May
	JOSEPH BRECK & SONS, Boston, Mass.				
60F	Princess Juliana, No. 9367			76	April
	COBURN SEED & SUPPLY CO., Chelmsford, Mass.				
1118	Harlem Market, No. 2580			89	May

‡ Below Standard and below guarantee.
† Below Standard.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1940
	SPINACH—Concluded				
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
312F	Savoy Dark Green Leaved Long Standing..... Ricard Grain Co., New Bedford			64	May
806	King of Denmark..... Harvey's Hardware Store, Falmouth			88	May
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
17F	Summer Savoy, No. 5619.....	80	12/1939	83	April
	THOMAS W. EMERSON CO., Boston, Mass.				
96F	Dark Green Bloomsdale Long Standing.....			87	April
811	Round Thick Leaf..... Charles T. Eastman, Hardware, Falmouth			63	May
	FRASER'S, Wellesley, Mass.				
458F	Bloomsdale Savoy.....	85	1/1940	84	May
	THOMAS J. GREY CO., Boston, Mass.				
76F	Long Standing Savoy.....			65	April
	JOSEPH HARRIS SEED CO., Rochester, N. Y.				
360F	King of Denmark, No. 462..... Joseph Harris Seed Co., Cambridge	88		87	April
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
519F	Bloomsdale Long Standing..... Central Hardware Co., Norwood	80	2/1940	82	April
1068	King of Denmark..... Carr Hardware Co., Pittsfield			70	May
	D. LANDRETH SEED CO., Bristol, Pa.				
472F	Bloomsdale Long Standing, No. 40187..... Elwood Adams, Inc., Worcester			74	April
743	Round Thick Leaf..... Goodman Hardware Co., Framingham			46†	June
	MICHAEL-LEONARD SEED CO., Chicago, Ill.				
526	Round Thick Leaf..... Schofield Hardware Co., North Attleboro			70	April
	PERRY SEED CO., Boston, Mass.				
35F	Long Standing Savoy, No. 6187.....			84	April
	ROSS BROS. CO., Worcester, Mass.				
486F	Bloomsdale Savoy, No. 129.....			88	April
	F. H. WOODRUFF & SONS, Milford, Conn.				
377F	Bloomsdale Long Standing Savoy, No. 12900.... Middlesex County Farm Bureau, Waltham	74	1/1940	78	April
1129	Bloomsdale Long Standing, No. 12900..... Fitchburg Hardware Co., Fitchburg	72	10/1938	83	May
	S. D. WOODRUFF & SONS, Orange, Conn.				
751	Long Standing Savoy..... Van Duzer Hardware Co., Framingham	82	1/1940	83	May
858	Round Thick Leaf, No. 1965..... Herman F. Davis, Merrimac	70	1/1940	93	May
945	Round Thick Leaf, No. 1754..... Feldman's, Leicester	55	12/1938	45†	June

† Below Standard.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1940
	SQUASH				
	Standard Germination 75%				
	ASSOCIATED SEED GROWERS, INC., New Haven, Conn.				
259F	Giant Summer Crookneck, No. 90041	90	11/1939	98	July
	W. G. Pearse & Co., Fall River				
	ASSOCIATED SEED GROWERS, INC., Cambridge, N. Y.				
861	Improved Green Hubbard	80	11/1939	97	June
	Checkerboard Feed Store, Amesbury				
	JOSEPH BRECK & SONS, Boston, Mass.				
61F	Giant Summer Straight Neck, No. 0207			98	July
	BARTLETT & DOW CO., Lowell, Mass.				
899	Golden Hubbard			97	July
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
536	Early Bush Summer Crookneck			96	July
	Franklin Hardware Co., North Attleboro				
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
18F	Conn. Straight Neck, No. 14918	90	12/1939	96	July
209	Golden Delicious, No. 10518	90	12/1939	98	June
	THOMAS W. EMERSON CO., Boston, Mass.				
97F	Summer Straight Neck			95	July
100	Warren Turban			51†	June
1193	Golden Summer Crookneck			89	July
	Phelan Hardware Co., Lee				
	FOSTER FARRAR CO., Northampton, Mass.				
1022	Warren Turban			91	June
	FRASER'S, Wellesley, Mass.	Approx.			
464	Early Summer Crookneck	90	1/1940	95	July
	G. W. GARDINER & SONS, Fall River, Mass.				
135F	Early Bush Summer Crookneck			87	July
	J. J. H. GREGORY & SON, Marblehead, Mass.				
911	Warren Turban			97	July
	THOMAS J. GREY CO., Boston, Mass.				
78F	Summer Giant Crookneck	95	12/1939	97	July
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
218F	Giant Summer Crookneck	89	12/1939	96	July
	Pierce Hardware Co., Taunton				
1070	Golden Hubbard			94	June
	Carr Hardware Co., Pittsfield				
1167	Blue Hubbard	90	1/1940	95	June
	Berkshire Hardware & Garden Supply Co., North Adams				
	D. LANDRETH SEED CO., Bristol, Pa.				
714	Early Summer Crookneck			93	July
	Wm. H. Casey, Inc., Milford				
878	Essex Hybrid Yellow Turban, No. 163 C	85 or more	1/1940	74‡	June
	Frank P. Mills, Campello				
	MICHAEL-LEONARD SEED CO., Chicago, Ill.				
997	Summer Crookneck			86	July
	W. E. Aubuchon Co., Inc., Northbridge				

† Below Standard.
‡ Below Standard and below guarantee.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1940
	SQUASH—Concluded				
268F	PARAMOUNT SEED CO., Stockton, Calif. Giant Straightneck Jose J. d'Arruda, Fall River	90		100	July
36F	PERRY SEED CO., Boston, Mass. Giant Summer Straight Neck, No. 6342			94	July
41	Winter Delicious, No. 6329			85	July
491	ROSS BROS. CO., Worcester, Mass. Blue Hubbard, No. 134			97	June
288F	JOSEPH SORDILLO & SONS, Boston, Mass. Cocozelli S. Pasquale			78	July
870	J. B. VARICK CO., Manchester, N. H. Essex Hybrid L. L. Peavey, Inc., Newburyport			72†	July
752	S. D. WOODRUFF & SONS, Orange, Conn. Straightneck Van Duzer Hardware Co., Framingham	Approx. 87	1/1940	80	July
946	Straightneck, No. 1651 Feldman's, Leicester	Approx. 47	12/1938	39†	August
	SWISS CHARD				
	Standard Germination 65%				
432	COMSTOCK, FERRE & CO., Wethersfield, Conn. Lucullus Wm. F. Flynn & Co., Attleboro			74	May
212	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass. Lucullus, No. 718	74	12/1939	81	May
732	THOMAS W. EMERSON CO., Boston, Mass. Lucullus W. K. Gilmore & Sons, Medfield			65	May
465	FRASER'S, Wellesley, Mass. Fordhook Giant	Approx. 85	1/1940	92	May
1043	CHARLES C. HART SEED CO., Wethersfield, Conn. Dark Green Berkshire Hardware Co., Pittsfield			3†(c)	June
985	BUDD D. HAWKINS, Reading, Vt. **Swiss Chard H. C. Maddox, Brimfield			81	May
399	LAKE SHORE SEED CO., Dunkirk, N. Y. **Swiss Chard O. Sergi, New Bedford	65	1939	66	May
996	MICHAEL-LEONARD SEED CO., Chicago, Ill. **Swiss Chard W. E. Aubuchon Co., Inc., Northbridge			66	May
498	ROSS BROS. CO., Worcester, Mass. Blond Large White Rib, No. 139			69	May
576	F. H. WOODRUFF & SONS, Milford, Conn. Lucullus Milford Hardware Co., Milford			80	May

† Below Standard.
(c) Wholesaler claims and retailer admits this seed not purchased during the current season.
** Variety required by law.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1940
	TOMATO				
	Standard Germination 75%				
	ASSOCIATED SEED GROWERS, INC., New Haven, Conn.				
257F	Dwarf Champion, E 588.1	90	8/1939	98	May
	W. G. Pearse & Co., Fall River				
	BARTLETT & DOW CO., Lowell, Mass.				
898	Bonny Best			85	May
	JOSEPH BRECK & SONS, Boston, Mass.				
62F	Marglobe, No. 0218			94	May
	W. ATLEE BURPEE CO., Philadelphia, Pa.				
850	Marglobe			96	May
	Frank's Wayside Stand, Haverhill				
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
322F	Bonny Best			90	May
	A. E. Wordell, New Bedford				
431	Stone			81	May
	Wm. F. Flynn & Co., Attleboro				
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
19F	Marglobe, No. 34 C 12016	85	12/1939	91	May
207	Bonny Best (Shirley), No. 34 B 38417	90	12/1939	93	May
	Eastern States Farmers' Exchange, Waltham				
	THOMAS W. EMERSON CO., Boston, Mass.				
98F	Marglobe			95	May
	FOSTER FARRAR CO., Northampton, Mass.				
1019	Marglobe			89	May
	FRASER'S, Wellesley, Mass.				
463	Master Marglobe	Approx. 90	1/1940	94	May
	G. W. GARDINER & SONS, Fall River, Mass.				
134F	Marglobe			89	May
	THE GOOD SEED CO., Fredonia, N. Y.				
298F	Livingston Beauty			95	May
	Elmwood School, East Bridgewater				
	J. J. H. GREGORY & SON, Marblehead, Mass.				
908	John Baer			93	May
	THOMAS J. GREY CO., Boston, Mass.				
77F	Bonny Best	89	12/1939	85	May
	JOSEPH HARRIS SEED CO., Rochester, N. Y.				
369	Marglobe, No. 770	92	1940	94	May
	Joseph Harris Seed Co., Cambridge				
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
221F	Pritchard or Scarlet Topper	93	12/1939	83§	May
	Pierce Hardware Co., Taunton				
	LAKE SHORE SEED CO., Dunkirk, N. Y.				
231F	New Stone	75	12/1939	60‡	May
	Weir Grain Co., Taunton				
520	Acme	75	1939	59‡	May
	Wrentham Pharmacy, Wrentham				
	D. LANDRETH SEED CO., Bristol, Pa.				
475	John Baer, No. 40206			92	May
	Elwood Adams, Inc., Worcester				

§ Above Standard but below guarantee.
‡ Below Standard and below guarantee.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1940
	TOMATO—Concluded				
	H. V. LAWRENCE, Falmouth, Mass.				
814	Penn State			70†	May
	MICHAEL-LEONARD SEED CO., Chicago, Ill.				
1091	Earliana The Mutual Plumbing & Heating Co., Amherst			89	May
	NORTHRUP, KING & CO., Minneapolis, Minn.				
213F	Stone F. W. Woolworth Co., Boston			87	May
	THE PAGE SEED CO., Greene, N. Y.				
610	John Baer Stone Hardware Co., Brockton			90	May
775	Ponderosa A. C. Lamson, Inc., Marlboro	Approx. 85	1939	89	May
	GEORGE R. PEDRICK & SON, Pedricktown, N. J.				
990	Marglobe The Continental Nurseries, Franklin			75	May
	PERRY SEED CO., Boston, Mass.				
37F	Bonny Best, No. 6915			92	May
	JEROME B. RICE SEED CO., Cambridge, N. Y.				
1059	Livingston's Beauty Frank Howard, Inc., Pittsfield			92	May
	ROSS BROS. CO., Worcester, Mass.				
493	Bonny Best, No. 135			95	May
700	Chalk's Early Jewel Task Hardware Co., Brockton			77(c)	May
	SARGENT'S GRAIN & SUPPLY CO., Brockton				
694	Marglobe			82	May
	THORNTON & CROUCH, Lawrence, Mass.				
833	Marglobe			83	May
	JOSEPH WHITE CO., Bridgeton, N. J.				
272F	Marglobe, No. 326 Jose J. d'Arruda, Fall River	97	9/1939	98	May
	F. H. WOODRUFF & SONS, Milford, Conn.				
577	John Baer Milford Hardware Co., Milford			84	May
848	Dwarf Stone D. J. Mahoney, Bradford			90	May
1084	Earliana Pittsfield Hardware & Plumbing Supply Co., Pittsfield			84	May
	TURNIP				
	Standard Germination 80%				
	ASSOCIATED SEED GROWERS, INC., Cambridge, N. Y.				
862	Purple Top White Globe Checkerboard Feed Store, Amesbury	90	2/1940	98	July
1089	Purple Top White Globe Checkerboard Feed Store, Amherst	90	2/1940	99	July
	JOSEPH BRECK & SONS, Boston, Mass.				
63F	Purple Top Strap Leaf, No. 0223			98	July

† Below Standard.
(c) Wholesaler claims and retailer admits this seed not purchased during current season.

1940 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Concluded

VEGETABLES—Concluded

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1940
	TURNIP—Concluded				
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
543	White Egg			93	July
	Mansfield Lumber Co., Mansfield				
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
20F	Amber Globe, No. 619	85	12/1939	80	July
	THOMAS W. EMERSON CO., Boston, Mass.				
99F	Purple Top White Globe			98	July
	JOSEPH HARRIS SEED CO., Rochester, N. Y.				
364F	Purple Top White Globe, No. 571	96	1940	95	July
	Joseph Harris Seed Co., Cambridge				
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
1040	White Egg			0†(c)	July
	Berkshire Hardware Co., Pittsfield				
	LAKE SHORE SEED CO., Dunkirk, N. Y.				
788	Early Purple Top Strap Leaved	80	12/1939	46‡	August
	I. Bachrach, Maynard				
	PERRY SEED CO., Boston, Mass.				
44F	Purple Top White Globe, No. 7055			92	July
	J. B. VARICK CO., Manchester, N. H.				
869	Purple Top Strap Leaf			75†	July
	L. L. Peavey, Inc., Newburyport				
	F. H. WOODRUFF & SONS, Milford, Conn.				
1031	Early Purple Top, No. 11788			84	July
	Peirson Hardware Co., Pittsfield				
	S. D. WOODRUFF & SONS, Orange, Conn.				
766	Red Top Globe	90	1/1940	86	July
	Marlboro Hardware & Plumbing Co., Marlboro				
	WATERMELON				
	Standard Germination 70%				
	FOSTER FARRAR CO., Northampton, Mass.				
1023	Kleckley's Sweet			98	August

† Below Standard.
(c) Wholesaler claims and retailer admits this seed not purchased during current season.
‡ Below Standard and below guarantee.

TYPE AND VARIETY STUDIES OF VEGETABLES

Conducted in Conjunction with the Department of Olericulture,

Grant B. Snyder, Professor

In order to determine the trueness to type or variety of vegetable seeds which are offered for sale by the seedsmen in this State, samples of seed of those kinds of vegetables which are grown in the greatest quantity in Massachusetts are taken by State Inspectors and sent to the Massachusetts Agricultural Experiment Station at Amherst, where the Department of Olericulture sows seed of the various lots in field test plots in order to compare plant characteristics with the labeled variety name and other descriptive information.

During the 1940 season 253 lots were planted in trial grounds, including beans, beets, broccoli, cabbage, carrots, cauliflower, celery, corn, cucumbers, lettuce, onions, parsley, parsnips, peppers, radish, rutabagas, spinach, squash, tomato and turnip.

The soil of the trial plots was of a sandy loam type. It was fertilized properly and thoroughly prepared prior to seedage or plant setting. Growth and development was satisfactory, although the growing season was cold and wet during June and the first two weeks of July, with late July and part of August hot and dry.

The results reported below should be interpreted with certain reservations because of the fact that not all strains and varieties are affected alike by various climatic and soil conditions.

Yield records were not taken because of the necessity of using small plots and also because replication of the plantings was impossible with the large number of strains and varieties that were compared.

Conformity to type has been the criterion of general excellence in these studies. Type in plants deals with numerous characteristics such as the shape of the marketable portion of the plant; relative smoothness, tallness, or dwarfness; different colors of flowers, fruits, or seeds; disease resistance or susceptibility; and many other well-defined differences. Individual plants have been called off-type where they did not conform reasonably closely to the average for the particular strain or variety under consideration.

Only those lots of seed which were found to be slightly or definitely off type are included in the following table. The percentages listed mean actual numbers of plants that were within the type range and developed, for the variety in question, a reasonably satisfactory plant. The source of the seed and the laboratory germination records are to be found in the table on pages 52-84 where the lots of seed used in the field tests are identified by the letter "F" added to the laboratory number. Those seeds tested in the field and not included in the following table were found 100% true to type.

FIELD TESTS OF VEGETABLE SEEDS

Lab. No.	Kind of Seed and Variety	True to Type Percent	Remarks
	BEANS		
478 F	Landreth's Stringless Green Pod No. 3915	98	2% Stringless Valentine
228 F	Burpee's Stringless Green Pod	98	2% Stringless Valentine
	BEETS		
393 F	Early Blood	92	2% long tapering — 6% flattened
217 F	Early Wonder	96	2% elongated globe — 2% top-shaped
275 F	Early Wonder	94	6% top-shaped
307 F	Early Wonder	88	12% top-shaped
342 F	Early Wonder, No. 1-157	82	2% light green tops, carmine skin, and white flesh — 4% tops light green — 12% top-shaped
482 F	Early Wonder, No. 125	96	2% top-shaped — 2% elongated globe
3 F	Crosby's Early Wonder, No. 718	94	2% green top and seeder — 2% top-shaped — 2% elongated globe
125 F	Early Wonder	90	10% top-shaped
216 F	Early Wonder or Crosby's Egyptian	98	2% top-shaped
48 F	Early Wonder, No. 0116	96	2% light colored roots — 2% top-shaped
69 F	Crosby's Egyptian	78	2% elongated globe — 20% top-shaped
82 F	Crosby's Egyptian	94	6% top-shaped
126 F	Crosby's Egyptian	92	8% top-shaped
338 F	Crosby's Egyptian	98	2% top-shaped
363 F	Crosby's Egyptian (Harris Sp. Str. No. 431)	92	8% top-shaped (very good conformity)
382 F	Crosby's Egyptian	88	2% globular — 10% top-shaped
454 F	Boston Crosby	92	8% top-shaped
248 F	Detroit Dark Red	94	6% spindle-shaped
261 F	Detroit Dark Red, No. 78545	90	10% flat
320 F	Detroit Dark Red	92	8% elongated globe
383 F	Detroit Dark Red	92	8% spindle-shaped
406 F	Detroit Dark Red	91	3% flat — 6% long top
420 F	Detroit Dark Red, No. 1732	96	2% spindle-shaped — 2% flat
502 F	Detroit Dark Red	96	4% flat
23 F	Detroit Dark Red, No. 1176	96	4% flat
	BROCCOLI		
83 F	Green Sprouting	93	7% light green
	CABBAGE		
425 F	Golden Acre, No. 1744	93	7% late slightly savoyed (type mixed)
5 F	Short Stem Ballhead, No. 410	93	7% very light blue
	CARROTS		
501 F	Chantenay	80	20% tapering
241 F	Chantenay	82	18% tapering
384 F	Red Cored Chantenay	76	24% tapering
25 F	Chantenay, No. 2059	74	26% tapering
51 F	Chantenay, No. 0120	70	A very poor Chantenay — 30% tapering
129 F	Chantenay	90	10% tapering
145 F	Chantenay	86	2% light colored — 12% tapering
128 F	Danvers Half Long	95	5% light colored
612 F	Danvers Half Long	90	10% very light colored

FIELD TESTS OF VEGETABLE SEEDS—Concluded

Lab. No.	Kind of Seed and Variety	True to Type Percent	Remarks
	CARROTS — Concluded		
517 F	Danvers Half Long	94	2% light colored — 4% stump-rooted
470 F	Danvers Half Long, No. 3964	92	4% stump-rooted — 4% light colored
455 F	Danvers Half Long	92	4% stump-rooted — 4% light colored
421 F	Danvers Half Long	90	10% stump-rooted
321 F	Danvers Half Long	98	2% stump-rooted
262 F	Danvers Half Long, No. 87028	96	4% stump-rooted
615 F	Danvers Long Orange	88	12% light colored
395 F	Long Orange	96	2% stump-rooted — 2% light colored
309 F	Long Orange	92	4% stump-rooted — 4% light colored
86 F	Hutchinson	94	6% light colored
638 F	Hutchinson, No. 2055	88	12% light yellow
381 F	Hutchinson, No. 1-6172	98	2% light yellow
71 F	Hutchinson	97	3% light yellow
	CORN		
52 F	Golden Sunshine, No. 0288	0	Not Golden Sunshine
	ONIONS		
423 F	Danvers Yellow Globe, No. 2051	96	4% white flesh
	PEPPERS		
233 F	Red Bell or Bull Nose	93	7% hot
	RADISH		
93 F	Cavalier	94	5% very long tapering — 1% very flat and light colored
359 F	Cavalier, No. 738	93	4% very tapering — 3% too long (1 obovate)
386 F	Early Scarlet Globe	89	3% long very thin — 7% long tapering — 1% obovate
319 F	Early Scarlet Globe	86	3% long very thin — 2% long oblong — 9% long tapering
15 F	Early Scarlet Globe, No. 1010	88	12% long tapering
33 F	Scarlet Globe, No. 5821	85	12% long tapering — 3% elongated obovate
58 F	Scarlet Globe, No. 0355	89	Early seeding strain — 11% long tapering
75 F	Scarlet Globe	96	Probably best of strains — 3% long tapering — 1% white skin
133 F	Scarlet Globe	93	5% long tapering — 2% long spindle
146 F	Early Scarlet Globe	72	Very variable in type — 1% white — 14% long tapering — 13% spindle-shaped
299 F	Early Scarlet Turnip	86	7% very flattened — 3% many side roots, not fleshy — 1% icicle — 3% long spindle
	TURNIP		
63 F	Purple Top Strap Leaf, No. 0223	96	4% off type — top-shaped rather than flat
364 F	Purple Top White Globe, No. 571	44	28% off type — 2% striped — 26% long and tapering
44 F	Purple Top White Globe, No. 7055	76	12% off type — 2% all white root — 10% long and tapering
99 F	Purple Top White Globe	76	24% off type — long and tapering

STUDIES OF FLOWER SEEDS

Conducted by the Department of Floriculture

Clark L. Thayer, Professor

For the fifth season the Department of Floriculture has cooperated with the Seed Laboratory in maintaining trials to determine the quality of flower seed sold in retail seed stores, garages, hardware stores, groceries, schools, and other retail outlets. The seeds, which were collected by the State Seed Inspector, were tested for germination and performance under field conditions.

Seeds of 194 lots, representing 46 genera, packeted by 32 different wholesalers, and obtained from 53 retail outlets, were classified as follows:

Acroclinium	1	Helianthus (Sunflower)	2
Ageratum	6	Iberis (Candytuft)	4
Alyssum	6	Impatiens (Balsam)	3
Antirrhinum (Snapdragon)	5	Ipomoea (Moonflower and Morning Glory)	7
Arctotis	1	Lobelia	2
Arnebia	1	Lupinus (Lupine)	3
Calendula	9	Matthiola (Stock)	1
Calliopsis	1	Mirabilis (Four-O'Clock)	2
Callistephus (Aster)	11	Nemophila	1
Celosia (Cockscomb)	3	Nicotiana	1
Centaurea (including Bachelor Button)	9	Papaver (Poppy)	3
Chrysanthemum	4	Petunia	5
Cleome	1	Phlox	5
Cosmos	7	Portulaca	2
Delphinium (Larkspur)	5	Reseda (Mignonette)	4
Dianthus	2	Salvia	5
Didiscus	1	Sanvitalia	1
Dimorphotheca (African Daisy)	1	Scabiosa	5
Eschscholtzia (California Poppy)	1	Tagetes (Marigold)	13
Euphorbia (Snow-on-the-Mountain)	4	Tropaeolum (Nasturtium)	13
Gaillardia	3	Verbena	5
Gilia	1	Zinnia	20
Godetia	1		
Gypsophila (Baby's Breath)	3	TOTAL	194

No germination tests were made in the laboratory on any of the lots of seed, since many of the packets contained too small a quantity of seed for both field and laboratory tests. Remarks on germination observed in the field are comparative and are not rated on a percentage basis.

When the number of seeds permitted, rows fifteen feet long were sown. Germination was rated as "good" if the seeds germinated in approximately two-thirds of the row; "fair" between one-third and two-thirds; "poor" for one-third or less. Performance was designated as "satisfactory" if the varieties were true to name, producing only a low percentage of plants which were not true to form or color (one-third) or less; "fair" between one-third and two-thirds not true; and "not satisfactory" if less than one-third was true to name or did not produce satisfactory plants for providing sufficient data.

As far as possible trueness-to-type was determined, but since many lots were described as mixtures or did not carry varietal names, a wide range in color and form was permissible.

The seeds were sown on June 18 and 19, approximately ten days later than in 1939. A slight frost which occurred on the morning of August 25 injured some of the plants slightly, but practically all varieties recovered from the injury.

One plant of Crested Cockscomb in Lot No. 1168 F was the most severely injured plant in the entire field. The first killing frost came on the morning of September 27; it caused severe injury to all varieties except the hardy annuals. Total rainfall for the months of June, July, August, and September in 1940 was 10.24 inches as compared with 12.73 inches for the same period in 1939, and 32.49 inches in 1938. The normal rainfall for this period is 16.19 inches.[1] In spite of the decrease this year none of the plants in the field appeared to suffer from lack of moisture.

[1]Data on precipitation and frosts were taken from the monthly bulletins, "Meteorological Observations," of the Massachusetts Agricultural Experiment Station.

FLOWER SEED INSPECTION

Lab. No.	Kind and Variety of Seed, Wholesale Distributor, Dealer When Other Than Wholesale Distributor, and Place Collected	Field Tests: Germination	Field Tests: Performance
	ACROCLINIUM		
	JOSEPH BRECK & SONS, Boston, Mass.		
555F	Giant Mixed	Good	Satisfactory
	AGERATUM		
	THOMAS W. EMERSON CO., Boston, Mass.		
113F	Blue Ball Villeneuve Hardware Co., Haverhill	Poor	Not satisfactory
179F	Blue Ball	Poor	Not satisfactory
	FRASER'S, Wellesley, Mass.		
1211F	Blue Ball Vanderhoof Hardware Co., Concord	Good	Satisfactory
	THOMAS J. GREY CO., Boston, Mass.		
278F	Midget Blue	Fair	Satisfactory
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
1202F	Blue Perfection H. W. Hardy Co., Groveland	Good	Satisfactory
	ROSS BROS. CO., Worcester, Mass.		
620F	Little Dorrit	Good	Satisfactory
	ALYSSUM		
	BODGER SEED, LTD., El Monte, Cal.		
426F	Dwarf Little Gem Monroe's Seed Market, Attleboro	Fair	Fair 50% true to name
	EMPIRE SEED CO., Fredonia, N. Y.		
1115F	Sweet Chelmsford Square Hardware Co., Chelmsford	Good	Satisfactory
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
787F	Sweet I. Bachrach, Maynard	Fair	Satisfactory
	H. V. LAWRENCE, Falmouth, Mass.		
818F	Little Gem	Good	Satisfactory
	J. B. RICE, JR., INC., Shushan, N. Y.		
771F	Little Gem A. C. Lamson, Inc., Marlboro	Good	Not satisfactory Not true to name
1037F	Little Gem Peirson Hardware Co., Pittsfield	Good	Not satisfactory Not true to name
	ANTIRRHINUM — Snapdragon		
	FERRY-MORSE SEED CO., Detroit, Mich.		
651F	Giant Bedding Yellow O'Brien Hardware Co., East Milton	Good	Satisfactory 1 plant dull orange, 2 plants garnet
1218F	Giant Bedding Yellow Sears Roebuck Co., Lowell	Good	Satisfactory 1 plant each bronze, light yellow, red
	THOMAS J. GREY CO., Boston, Mass.		
286F	Rust Resistant, Maximum Yellow Giant	Good	Satisfactory 1 plant rose, 1 plant bronze
	MANDEVILLE, KING & CO., Rochester, N. Y.		
1227F	Rose Pink — Rust Proof J. L. Kenney, Florist, Lowell	Good	Satisfactory 1 plant red
	THORNTON & CROUCH, Lawrence, Mass.		
844F	California Giants	Good	Satisfactory 7 colors
	ARCTOTIS		
	H. V. LAWRENCE, Falmouth, Mass.		
819F	Grandis	Fair	Satisfactory

FLOWER SEED INSPECTION — Continued

Lab. No.	Kind and Variety of Seed, Wholesale Distributor, Dealer When Other Than Wholesale Distributor, and Place Collected	Field Tests: Germination	Field Tests: Performance
	ARNEBIA		
	JOSEPH BRECK & SONS, Boston, Mass.		
558F	Cornuta	Good	Satisfactory
	ASTER		
	FERRY-MORSE SEED CO., Detroit, Mich.		
1220F	Giant Crego Crimson Sears Roebuck Co., Lowell, Mass.	Fair	Satisfactory
	THOMAS J. GREY CO., Boston, Mass.		
276F	Early Giant Wilt-Resistant Peach Blossom	Good	Satisfactory
277F	Giant Harmony Mixed	Good	Satisfactory 5 colors
	MANDEVILLE, KING & CO., Rochester, N. Y.		
1240F	El Monte Leominster Hardware Co., Leominster	Fair	Had not bloomed October 14
	MONROE'S SEED MARKET, Attleboro, Mass.		
427F	Queen of the Market, Mixed	Good	Satisfactory 7 colors
	PERRY SEED CO., Boston, Mass.		
441F	American Branching Shell Pink	Good	Satisfactory 1 plant dark rose
	ROSS BROS. CO., Worcester, Mass.		
621F	Heart of France	Good	Satisfactory
	J. B. RICE, JR., INC., Shushan, N. Y.		
1205F	Heart of France B. R. Parker, Weston	Good	Satisfactory
1238F	Heart of France Gruener Hardware Co., Inc., Fitchburg	Good	Satisfactory
	STERLING SEED CO., Minneapolis, Minn.		
1049F	Tall, Double Mixed J. J. Newberry & Co., Pittsfield	Good	Satisfactory 5 colors
	THORNTON & CROUCH, Lawrence, Mass.		
841F	California Sunshine	Fair	Not satisfactory Not true, single-flowered
	BACHELOR BUTTON		
	THOMAS W. EMERSON CO., Boston, Mass.		
178F	Blue, Florists' Strain	Good	Satisfactory
	FRASER'S, Wellesley, Mass.		
189F	Double Blue	Good	Satisfactory
	THE GOOD SEED CO., Fredonia, N. Y.		
397F	Tall, Double Blue Union Street School, Middleboro	Good	Satisfactory
	MANDEVILLE, KING & CO., Rochester, N. Y.		
1216F	Jubilee Gem, Dwarf Blue Vanderhoof Hardware Co., Concord	Good	Satisfactory 9 in. to 15 in. in height
	NORTHRUP, KING & CO., Minneapolis, Minn.		
800F	Double Blue S. C. M. Packard & Co., Wareham	Good	Satisfactory 1 plant lavender
	PERRY SEED CO., Boston, Mass.		
439F	Double Deep Blue	Good	Satisfactory
	ROSS BROS. CO., Worcester, Mass.		
625F	Cyanus Double Blue	Good	Satisfactory
	STERLING SEED CO., Minneapolis, Minn.		
119F	Double Blue J. J. Newberry & Co., Haverhill	Good	Satisfactory

FLOWER SEED INSPECTION — Continued

Lab. No.	Kind and Variety of Seed, Wholesale Distributor, Dealer When Other Than Wholesale Distributor, and Place Collected	Field Tests: Germination	Field Tests: Performance
	BALSAM		
	THOMAS J. GREY CO., Boston, Mass.		
285F	Bush Flowered Mixed	Good	Satisfactory 5 colors
	NORTHRUP, KING & CO., Minneapolis, Minn.		
1159F	Double Mixed W. E. Aubuchon Co., Inc., Shelburne Falls	Good	Satisfactory 10 colors
	THORNTON & CROUCH, Lawrence, Mass.		
842F	Camellia Flowered	Good	Satisfactory 9 colors
	BLUE LACE FLOWER		
	MANDEVILLE, KING & CO., Rochester, N. Y.		
1217F	Didiscus Vanderhoof Hardware Co., Concord	Fair	Satisfactory
	CALENDULA		
	THOMAS W. EMERSON CO., Boston, Mass.		
176F	Orange Shaggy	Fair	Not satisfactory Three types
	FRASER'S, Wellesley, Mass.		
1232F	Sunshine Gruener Hardware Co., Inc., Fitchburg	Good	Satisfactory
	J. J. H. GREGORY & SON, Marblehead, Mass.		
914F	Lemon Queen	Good	Satisfactory 1 plant orange
	MANDEVILLE, KING & CO., Rochester, N. Y.		
111F	Orange Shaggy Wm. F. Regan, Lawrence	Fair	Satisfactory
	NORTHRUP, KING & CO., Minneapolis, Minn.		
1223F	Double, Orange King Adams Hardware Co., Inc., Lowell	Good	Satisfactory
1239F	Radio-Orange Leominster Hardware Co., Leominster	Good	Satisfactory 1 yellow plant
	ROSS BROS. CO., Worcester, Mass.		
626F	Orange King	Good	Satisfactory
	STERLING SEED CO., Minneapolis, Minn.		
117F	Double Orange King J. J. Newberry & Co., Haverhill	Good	Not satisfactory Four types
	THORNTON & CROUCH, Lawrence, Mass.		
840F	Camp Fire	Good	Satisfactory
	CALIFORNIA POPPY		
	NORTHRUP, KING & CO., Minneapolis, Minn.		
1225F	All Colors, Mixed Adams Hardware Co., Inc., Lowell	Good	Not satisfactory Only one color
	CALLIOPSIS		
	THOMAS W. EMERSON CO., Boston, Mass.		
114F	Tall Mixed Colors Villeneuve Hardware Co., Haverhill	Good	Satisfactory Nine types
	CANDYTUFT		
	THOMAS W. EMERSON CO., Boston, Mass.		
177F	White	Poor	Not satisfactory
	FRASER'S, Wellesley, Mass.		
1229F	Hyacinth-flowered White Gruener Hardware Co., Inc., Fitchburg	Good	Satisfactory

FLOWER SEED INSPECTION — Continued

Lab. No.	Kind and Variety of Seed, Wholesale Distributor, Dealer When Other Than Wholesale Distributor, and Place Collected	Field Tests: Germination	Field Tests: Performance
	CANDYTUFT—Concluded		
	THE GOOD SEED CO., Fredonia, N. Y.		
398F	Giant White Hyacinth	Good	Satisfactory
	Union Street School, Middleboro		
	J. J. H. GREGORY & SON, Marblehead, Mass.		
915F	Rose Cardinal	Good	Satisfactory 1 plant lavender
	CENTAUREA IMPERIALIS		
	THOMAS J. GREY CO., Boston, Mass.		
279F	Royal Sweet Sultan Lavender Beauty	Poor	Not satisfactory
	CHRYSANTHEMUM		
	THOMAS W. EMERSON CO., Boston, Mass.		
181F	Single Choice Colors	Fair	Satisfactory
	FRASER'S, Wellesley, Mass.		
190F	Single and Double, All Sorts	Good	Satisfactory
	H. V. LAWRENCE, Falmouth, Mass.		
821F	Single mixed	Good	Satisfactory
	PAGE SEED CO., Greene, N. Y.		
1176F	Coronarium Double Mixed	Good	Not satisfactory Single-flowered forms also
	Clifford Hardware Co., Lenox		
	CLEOME		
	JOSEPH BRECK & SONS, Boston, Mass.		
554F	White Feather	Good	Satisfactory
	COCKSCOMB		
	THOMAS W. EMERSON CO., Boston, Mass.		
180F	Plumed	Good	Satisfactory 1 plant crested type
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
1168F	Dwarf Mixed	Fair	Not satisfactory Not dwarf; up to 24 inche
	S. Patashnick, North Adams		
	THE PAGE SEED CO., Greene, N. Y.		
1177F	Plumosa and Cristata mixed	Good	Satisfactory
	Clifford Hardware Co., Lenox		
	COSMOS		
	THOMAS W. EMERSON CO., Boston, Mass.		
115F	Orange Flare	Poor	Not satisfactory
	Villeneuve Hardware Co., Haverhill		
	CROSMAN SEED CORP., East Rochester, N. Y.		
1145F	Orange Flare	Good	Satisfactory
	Montgomery Ward & Co., Greenfield		
	FERRY-MORSE SEED CO., Detroit, Mich.		
1222F	Klondyke Orange Flare	Good	Satisfactory
	Sears Roebuck Co., Lowell		
	MANDEVILLE, KING & CO., Rochester, N. Y.		
1235F	Sensation Pink and White	Good	Satisfactory
	Gruener Hardware Co., Fitchburg		
	PERRY SEED CO., Boston, Mass.		
442F	Mammoth Flowering Pink	Good	Satisfactory
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
1090F	Early Flowering Mixed	Good	Satisfactory
	Checkerboard Feed Store, Amherst		
	J. B. RICE, JR., INC., Shushan, N. Y.		
1236F	Orange Flare	Fair	Satisfactory
	Gruener Hardware Co., Fitchburg		

FLOWER SEED INSPECTION — Continued

Lab. No.	Kind and Variety of Seed, Wholesale Distributor, Dealer When Other Than Wholesale Distributor, and Place Collected	Field Tests: Germination	Field Tests: Performance
	DAISY (African)		
	THOMAS W. EMERSON CO., Boston, Mass.		
182F	Mixed colors (Dimorphotheca aurantiaca)	Very poor	Not satisfactory Only one plant
	DIANTHUS		
	JOSEPH BRECK & SONS, Boston, Mass.		
556F	Breck's Geisha Girl	Good	Satisfactory 8 colors
	FREDONIA SEED CO., Fredonia, N. Y.		
1164F	Heddewigi, Mixed W. N. Potter Grain Stores, Charlemont	Good	Satisfactory 8 colors
	FOUR O'CLOCK		
	FRASER'S, Wellesley, Mass.		
1250F	Finest Colors, Marvel of Peru Hamilton Hardware Co., Clinton	Good	Satisfactory 4 colors
	MONROE'S SEED MARKET, Attleboro, Mass.		
428F	Tall Red	Good	Satisfactory Nearer to deep rose than red
	GAILLARDIA		
	THOMAS W. EMERSON CO., Boston, Mass.		
116F	Double Mixed	Fair	Fair 10% single
	FRASER'S, Wellesley, Mass.		
192F	Single Finest Mixed	Good	Satisfactory
	H. V. LAWRENCE, Falmouth, Mass.		
820F	Indian Chief	Fair	Satisfactory Slight variations in color
	GILIA		
	MANDEVILLE, KING & CO., Rochester, N. Y.		
1244F	Queen Anne's Thimble Leominster Hardware Co., Leominster	Good	Satisfactory
	GODETIA		
	FRASER'S, Wellesley, Mass.		
193F	Tall, Double Finest Mixed	Good	Satisfactory 4 colors
	GYPSOPHILA		
	FRASER'S, Wellesley, Mass.		
194F	London Market, White	Good	Satisfactory
1252F	London Market, White Hamilton Hardware Co., Clinton	Good	Satisfactory
	JOSEPH HARRIS SEED CO., Rochester, N. Y.		
371F	Gypsophila Joseph Harris Seed Co., Cambridge	Good	Satisfactory
	LARKSPUR		
	THOMAS J. GREY CO., Boston, Mass.		
280F	Sapphire Cockade	Good	Satisfactory 1 plant purple
	MANDEVILLE, KING & CO., Rochester, N. Y.		
122F	Dark Blue H. W. Hardy Co., Groveland	Good	Satisfactory
	NORTHRUP, KING & CO., Minneapolis, Minn.		
1213F	Lustrous Carmine F. W. Woolworth Co., Concord	Good	Satisfactory Slight variations in color

FLOWER SEED INSPECTION — Continued

Lab. No.	Kind and Variety of Seed, Wholesale Distributor, Dealer When Other Than Wholesale Distributor, and Place Collected	Field Tests: Germination	Field Tests: Performance
	LARKSPUR—Concluded		
	PERRY SEED CO., Boston, Mass.		
438F	Grand Imperial Crimson King	Good	Satisfactory
	J. B. RICE, JR., INC., Shushan, N. Y.		
1038F	Tall, Double Mixed Peirson Hardware Co., Pittsfield	Fair	Satisfactory 4 colors
	LOBELIA		
	FRASER'S, Wellesley, Mass.		
188F	Crystal Palace Compacta	Poor	Not satisfactory
1209F	Crystal Palace Compacta Vanderhoof Hardware Co., Concord	Poor	Not satisfactory
	LUPINE		
	THOMAS W. EMERSON CO., Boston, Mass.		
185F	Choice colors	Good	Satisfactory 3 colors
	MARIGOLD		
	FERRY-MORSE SEED CO., Detroit, Mich.		
112F	Yellow Supreme Wm. F. Regan, Lawrence	Good	Satisfactory
	G. W. GARDINER & SONS, Fall River, Mass.		
141F	Double African Orange	Good	Satisfactory
	THOMAS J. GREY CO., Boston, Mass.		
282F	French Dwarf Double Scabiosa Flowered Orbit	Good	Satisfactory
283F	Hedge or Border Type Spanish Gold	Fair	Satisfactory
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
1171F	African Tall Double Eldorado Maskell-Broderick Co., Inc., Lenox	Fair	Not satisfactory 30% orange, 70% yellow
	HYGRADE SEED CO., Fredonia, N. Y.		
390F	Collarette Crown of Gold Union Street School, Middleboro	Good	Satisfactory
392F	Sunset Giants and California Giants Mixed Union Street School, Middleboro	Good	Satisfactory
	MANDEVILLE, KING & CO., Rochester, N. Y.		
1204F	Burpee Gold Odorless H. W. Hardy Co., Groveland	Poor	Not satisfactory
1207F	French Dwarf Harmony B. R. Parker, Weston	Good	Fair 50% true to type
	NORTHRUP, KING & CO., Minneapolis, Minn.		
1214F	Sunset Giants Mixed F. W. Woolworth & Co., Concord	Good	Satisfactory
	J. B. RICE, JR., INC., Shushan, N. Y.		
774F	Collarette Crown of Gold A. C. Lamson, Inc., Marlboro	Poor	Not satisfactory
	ROSS BROS. CO., Worcester, Mass.		
624F	Yellow Supreme	Good	Satisfactory
	STERLING SEED CO., Minneapolis, Minn.		
118F	Guinea Gold J. J. Newberry & Co., Haverhill	Good	Satisfactory
	MIGNONETTE		
	FRASER'S, Wellesley, Mass.		
1210F	Annual Vanderhoof Hardware Co., Concord	Good	Satisfactory Five Types

FLOWER SEED INSPECTION — Continued

Lab. No.	Kind and Variety of Seed, Wholesale Distributor, Dealer When Other Than Wholesale Distributor, and Place Collected	Field Tests: Germination	Field Tests: Performance
	MIGNONETTE—Concluded		
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
324F	Large Flowering Sweet Bliss Hardware Co., Plymouth	Fair	Satisfactory
1203F	Large Flowering Sweet H. W. Hardy Co., Groveland	Good	Satisfactory
	THORNTON & CROUCH, Lawrence, Mass.		
843F	Golden Goliath	Good	Satisfactory 10% not true to type
	MOONFLOWER		
	FRASER'S, Wellesley, Mass.		
195F	White	Fair	Satisfactory
1234F	White Gruener Hardware Co., Fitchburg	Good	Satisfactory
	MORNING GLORY		
	FRASER'S, Wellesley, Mass.		
1233F	White Gruener Hardware Co., Fitchburg	Good	Satisfactory
	JOSEPH HARRIS SEED CO., Rochester, N. Y.		
373F	Large Flowering Heavenly Blue Joseph Harris Seed Co., Cambridge	Good	Satisfactory
	HYGRADE SEED CO., Fredonia, N. Y.		
388F	Heavenly Blue Union Street School, Middleboro	Good	Satisfactory
	ROSS BROS. CO., Worcester, Mass.		
618F	Heavenly Blue	Good	Satisfactory
	F. H. WOODRUFF & SONS, Milford, Conn.		
1036F	Mixed colors Peirson Hardware Co., Pittsfield	Fair	Satisfactory
	NASTURTIUM		
	JOSEPH BRECK & SONS, Boston, Mass.		
564F	Dwarf Mixed Franklin Hardware Co., Franklin	Good	Satisfactory
	COMSTOCK, FERRE & CO., Wethersfield, Conn.		
433F	Dwarf Mixed Wm. F. Flynn, Attleboro	Good	Satisfactory 1 plant climbing type
	THOMAS W. EMERSON CO., Boston, Mass.		
1196F	Tall Mixed Phelan Hardware Co., Lee	Good	Fair Tall and dwarf mixed
	FOSTER FARRAR CO., Northampton, Mass.		
1024F	Dwarf Choice Mixed Colors	Good	Fair 50% climbing type
	FRASER'S, Wellesley, Mass.		
196F	Salmon Gleam	Good	Satisfactory 1 plant single orange
	FREDONIA SEED CO., Fredonia, N. Y.		
1163F	Golden Gleam W. N. Potter Grain Stores, Charlemont	Fair	Satisfactory
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
1045F	Golden Gleam Sweet Scented Double Berkshire Hardware Co., Pittsfield	Good	Satisfactory
	HYGRADE SEED CO., Fredonia, N. Y.		
391F	Double Scarlet Gleam Union Street School, Middleboro	Good	Satisfactory
	D. LANDRETH SEED CO., Bristol, Pa.		
479F	Landreth's Dwarf Mixed Elwood Adams, Inc., Worcester	Good	Satisfactory 1 plant climbing type

FLOWER SEED INSPECTION — Continued

Lab. No.	Kind and Variety of Seed, Wholesale Distributor, Dealer When Other Than Wholesale Distributor, and Place Collected	Field Tests: Germination	Field Tests: Performance
	NASTURTIUM—Concluded		
	MICHAEL-LEONARD SEED CO., Chicago, Ill.		
1158F	Dwarf Medium W. E. Aubuchon Co., Inc., Shelburne Falls	Poor	Not satisfactory
	THE PAGE SEED CO., Greene, N. Y.		
1175F	Dwarf Mixed Clifford Hardware Co., Lenox	Good	Satisfactory 2 plants climbing type
	ROSS BROS. CO., Worcester, Mass.		
619F	Double Golden Gleam Semi-dwarf	Good	Satisfactory
	F. H. WOODRUFF & SONS, Milford, Conn.		
1035F	Golden Gleam Peirson Hardware Co., Pittsfield	Good	Satisfactory
	NEMOPHILA		
	MANDEVILLE, KING & CO., Minneapolis, Minn.		
1254F	Blue and White Love Grove Hamilton Hardware Co., Clinton	Good	Satisfactory
	NICOTIANA		
	JOSEPH BRECK & SONS, Boston, Mass.		
557F	Affinis Hybrids	Good	Satisfactory
	PETUNIA		
	G. W. GARDINER & SONS, Fall River, Mass.		
139F	Rosy Morn	Good	Satisfactory Deeper color than 622F; white throat absent
	JOSEPH BRECK & SONS, Boston, Mass.		
552F	Hamlet Deep Violet	Good	Satisfactory 2 plants red-purple
	THOMAS J. GREY CO., Boston, Mass.		
281F	Nana Erecta Compacta — New Violet Blue	Good	Satisfactory 2 plants red-purple
	ROSS BROS. CO., Worcester, Mass.		
622F	Rosy Morn	Fair	Satisfactory White throat present; compare with 139F
	STERLING SEED CO., Minneapolis, Minn.		
1050F	Hybrida Blue J. J. Newberry & Co., Pittsfield	Fair	Satisfactory 1 plant white
	PHLOX		
	JOSEPH BRECK & SONS, Boston, Mass.		
548F	Drummondi; Tall True White	Good	Satisfactory
549F	Drummondi; Tall Yellow	Good	Satisfactory
550F	Drummondi; Tall Salmon Pink	Good	Satisfactory
551F	Drummondi; Tall Blood-red	Good	Satisfactory
553F	Drummondi; Tall Purple	Good	Satisfactory
	POPPY		
	W. ATLEE BURPEE CO., Philadelphia, Pa.		
851F	Fordhook, Hybrids Frank's Wayside Stand, Haverhill	Good	Satisfactory — 12 colors Mixture of types of *Papaver somniferum* and *P. rhoeas*
	HYGRADE SEED CO., Fredonia, N. Y.		
389F	American Legion Union Street School, Middleboro	Good	Satisfactory 5 colors
	MANDEVILLE, KING & CO., Rochester, N. Y.		
1242F	Flanders Field Leominster Hardware Co., Leominster	Good	Satisfactory 5 colors; single to semi-double

FLOWER SEED INSPECTION — Continued

Lab. No.	Kind and Variety of Seed, Wholesale Distributor, Dealer When Other Than Wholesale Distributor, and Place Collected	Field Tests: Germination	Field Tests: Performance
	PORTULACA		
	FRASER'S, Wellesley, Mass.		
187F	Double Choice Mixed	Fair	Satisfactory 16 colors; 25% single
	FREDONIA SEED CO., Fredonia, N. Y.		
1170F	Finest Double Mixed Maskell-Broderick Co., Inc., Lenox	Good	Satisfactory 16 colors; 25% single
	SALVIA		
	JOSEPH BRECK & SONS, Boston, Mass.		
547F	Blue Beard — Bright Purple	Good	Satisfactory
	G. W. GARDINER & SONS, Fall River, Mass.		
138F	Splendens	Good	Satisfactory
	LAKE SHORE SEED CO., Dunkirk, N. Y.		
983F	Splendens H. C. Maddox, Brimfield	Poor	Not satisfactory
	MANDEVILLE, KING & CO., Rochester, N. Y.		
109F	Scarlet Sage Wm. F. Regan, Lawrence	Poor	Not satisfactory
1153F	Scarlet Sage H. Newell & Co., Shelburne Falls	Poor	Not satisfactory
	SCABIOSA		
	FRASER'S, Wellesley, Mass.		
197F	Blue Cockade, Deep Azure Blue	Fair	First flower October 10
1231F	Blue Cockade, Deep Azure Blue Gruener Hardware Co., Fitchburg	Good	Had not flowered October 14
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
1113F	Mourning Bride Mixed Conant & Co., Littleton	Fair	Had not flowered October 14
	JOSEPH HARRIS SEED CO., Rochester, N. Y.		
372F	Double Variety Mixture Joseph Harris Seed Co., Cambridge	Good	Had not flowered October 14
	MANDEVILLE, KING & CO., Rochester, N. Y.		
110F	Blue Cockade Wm. F. Regan, Lawrence	Good	Had not flowered October 14
	SNOW-ON-THE-MOUNTAIN		
	THOMAS W. EMERSON CO., Boston, Mass.		
184F	Snow-on-the-mountain	Good	Satisfactory
	FRASER'S, Wellesley, Mass.		
191F	Euphorbia	Good	Satisfactory
	FERRY-MORSE SEED CO., Detroit, Mich.		
652F	Variegata O'Brien Hardware Co., East Milton	Good	Satisfactory
	MANDEVILLE, KING & CO., Rochester, N. Y.		
1228F	Euphorbia J. L. Kenney, Florist, Lowell	Good	Satisfactory
	STOCK		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
1245F	Finest Mixed Dwarf Gavin Hardware Co., Leominster	Poor	Not satisfactory

FLOWER SEED INSPECTION — Continued

Lab. No.	Kind and Variety of Seed, Wholesale Distributor, Dealer When Other Than Wholesale Distributor, and Place Collected	Field Tests: Germination	Field Tests: Performance
	SUNFLOWER		
	FOSTER FARRAR CO., Northampton, Mass.		
1025F	Mammoth Russian	Good	Satisfactory
	NORTHRUP, KING & CO., Minneapolis, Minn.		
1160F	Giant Russian W. E. Aubuchon Co., Inc., Shelburne Falls	Good	Satisfactory
	TEXAS BLUE BONNET		
	MANDEVILLE, KING & CO., Rochester, N. Y.		
1215F	Lupin Texensis Vanderhoof Hardware Co., Concord	None	
1255F	Lupin Texensis Hamilton Hardware Co., Clinton	Poor	Not satisfactory 3 plants
	VERBENA		
	THOMAS W. EMERSON CO., Boston, Mass.		
183F	Hybrida Mixed	None	
	FERRY-MORSE SEED CO., Detroit, Mich.		
1221F	Hybrida Scarlet Sears Roebuck Co., Lowell	Good	Satisfactory
	THOMAS J. GREY CO., Boston, Mass.		
287F	Mammoth-Vivid Rose Pink	Fair	Satisfactory 1 plant white
	MANDEVILLE, KING & CO., Rochester, N. Y.		
1241F	Lavender Glory Giant Hybrid Leominster Hardware Co., Leominster	Good	Fair 50% white
	ZINNIA		
	JOSEPH BRECK & SONS, Boston, Mass.		
559F	Crown of Gold, Pastel Tints	Good	Satisfactory 4 colors
	CROSMAN SEED CORP., East Rochester, N. Y.		
1146F	Giant Scarlet California Giant Montgomery Ward & Co., Greenfield	Good	Satisfactory
	FRASER'S, Wellesley, Mass.		
1230F	Dahlia Flowered Canary Bird Yellow Gruener Hardware Co., Fitchburg	Good	Satisfactory
1251F	Dahlia Flowered Canary Bird Hamilton Hardware Co., Clinton	Good	Satisfactory
	G. W. GARDINER & SONS, Fall River, Mass.		
140F	Giant Mammoth Mixed	Good	Satisfactory 5 colors
	THOMAS J. GREY CO., Boston, Mass.		
284F	Super Crown O'Gold, Pastel Shades	Good	Satisfactory 4 colors
	MANDEVILLE, KING & CO., Rochester, N. Y.		
108F	California Giant Red Wm. F. Regan, Lawrence	Good	Satisfactory
121F	Pompon Rose Pink H. W. Hardy Co., Groveland	Good	Satisfactory 1 plant dark salmon pink
1206F	Golden Yellow Creeping B. R. Parker, Weston	Fair	Satisfactory Botanically, *Sanvitalia procumbens*
1226F	Little Red Riding Hood, Scarlet Dwarf J. K. Kenney, Florist, Lowell	Good	Satisfactory 2 plants orange
1243F	California Giant Rose Pink Leominster Hardware Co., Leominster	Good	Satisfactory 1 plant red

FLOWER SEED INSPECTION — Concluded

Lab. No.	Kind and Variety of Seed, Wholesale Distributor, Dealer When Other Than Wholesale Distributor, and Place Collected	Field Tests	
		Germination	Performance
	ZINNIA—Concluded		
	NORTHRUP, KING & CO., Minneapolis, Minn.		
1212F	Dahlia Flowered Orange F. W. Woolworth Co., Concord	Good	Satisfactory
1224F	Dahlia Flowered Rose Adams Hardware Co., Lowell, Mass.	Good	Satisfactory 1 plant pink; 2 plants rose red
1248F	Giant Double Orange Union Hardware Co., Fitchburg	Good	Satisfactory
1249F	Red Riding Hood Union Hardware Co., Fitchburg	Good	Satisfactory 1 plant large flowered
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
1246F	Super Giant Purple Gavin Hardware Co., Leominster	Good	Satisfactory 1 plant white
1247F	Crimson Monarch Gavin Hardware Co., Leominster	Good	Satisfactory
1253F	Little Red Riding Hood Hamilton Hardware Co., Clinton	Good	Satisfactory 1 plant red-orange
	ROSS BROS. CO., Worcester, Mass.		
623F	Dahlia Flowered Monarch	Good	Satisfactory
	STERLING SEED CO., Minneapolis, Minn.		
120F	Dahlia Flowered Scarlet J. J. Newberry & Co., Haverhill	Good	Satisfactory 1 plant red-orange

VARIETY VARIATION STUDIES WITH SEED CORN

Conducted in Cooperation with the Department of Agronomy,

William G. Colby, Research Professor

Studies begun in 1939 to determine the range of variation between lots of seed corn sold under the same or similar varietal name but originating from different seed sources were continued in 1940. One hundred twenty-three samples of seed were collected and grown in a field test plot. The test was carried on in much the same manner as described in Control Series Bulletin No. 102 published in December, 1939, with the exception that the planting date at Amherst was May 20, four days earlier than in 1939.

The growing season in 1940 was much less favorable for the growth and development of corn than it was in 1939. Whereas in 1939 practically all varieties tested reached maturity; in 1940, only half the number tested reached that stage of growth and of those sixty-one varieties which did mature, only twenty-five produced sound, well-developed ears before the leaves showed considerable injury from frost. Wide variation in performance was found this year as well as last between lots of the same or similar varietal names but from different sources, with respect to the height of plants and to the number of days required for ripening. For example, one lot of Longfellow Flint matured four weeks earlier than another lot, and the earliest strain of Canada Flint matured ten days earlier than the latest. In fact, it is doubtful whether any of the strains of Canada Flint grown represented what is generally considered to be true Canada Flint corn. They all made larger stalk growth, grew longer ears, and matured much later than true Canada Flint. In 1939 all strains of West Branch Sweepstakes and all but one strain of Improved Leaming reached full maturity, while in 1940 only two out of eighteen strains of the former and not one of the sixteen strains of the latter reached this stage.

The results of the past two years of testing justify the following conclusions:

1. The variety name on a commercial lot of open pollinated seed corn is of little value in predicting the performance of that strain with respect to the length of growing season required for maturity. Unless a grower is familiar with the performance of a particular dealer's strain under his local growing conditions, he is likely to be disappointed with the results from the use of commercial seed corn.

2. In selecting a variety for grain in Massachusetts, a relatively early maturity variety must be chosen which, though not producing maximum yields of either grain or stover in favorable seasons, can be relied upon to produce good yields of grain and fair yields of stover during unfavorable seasons. Later maturing varieties, which will give higher yields of grain and particularly of stover in favorable seasons, can be used only for silage or as forage in unfavorable seasons.

In the following table showing results of field tests the laboratory number to which the letter "F" has been added indicates that the samples were taken from seedmen's stock by a State Inspector and were tested for viability in the Seed Laboratory. The source of the seed and results of laboratory tests are given on pages 16 to 25.

FIELD TESTS OF CORN VARIETIES

Lab. No.	Sales Name	Number of Days to Ripening
	FLINT VARIETIES	
1052 F	Howard's N. Y. State 8 Row Flint	114
939 F	Pipe Stem	116
1123 F	Early 8 Rowed Canada	122
1002 F	Yellow Flint	124
1149 F	Early 8 Row Canada Flint	125
629 F	Early Canada	125
148 F	Early Yellow Canada	127
959 F	Canada Early Yellow Flint	129
987 F	8 Row Yellow Flint	131
1161 F	Canada Early Yellow Flint	132
966 F	8 Rowed Yellow Flint	134
889 F	Longfellow Flint	106
824 F	Flint, Longfellow Type	125
631 F	Longfellow Flint	125
938 F	Page's Longfellow Flint	130
1131 F	Longfellow Flint	130
147 F	Longfellow	134
447 F	Golden Nugget	128
1104 F	King Philip Flint	132
	DENT VARIETIES	
1198 F	Minnesota 402	105
234 F	Minnesota 13	109
1121 F	Minnesota 13	111
451 F	Cornell 11	111
107 F	Cornell 11	111
1200 F	Iowealth Ensilage Hybrid 100	118
†1144 F	Yellow Dent Matched	122
628 F	Early Smoky Dent	124
154 F	Smoky Dent	124
1154 F	Canada Leaming	124
875 F	Cornell 29-3	124
1017 F	Cornell 29-3	124
448 F	Cornell 29-3	124
237 F	West Branch Sweepstakes	127
362 F	Sweepstakes	127
1201 F	West Branch	130
103 F	West Branch Sweepstakes	130
379 F	West Branch Sweepstakes	130
634 F	West Branch Sweepstakes	*
667 F	Sweepstakes	*
929 F	Reist Sweepstakes	138
685 F	Reist Sweepstakes	138
924 F	Page's Westbranch Sweepstakes	*
957 F	Hybrid Red Sweepstakes Md. 4	138
151 F	Hybrid Sweepstakes	140
830 F	Southern Hybrid Sweepstakes	*
826 F	Improved Sweepstakes Type	*
627 F	Worcester County Sweepstakes	*
1097 F	Perry's Graded Sweepstakes	*
153 F	Breck's Sweepstakes	*
1156 F	Westbranch Sweepstakes	*

†Seed grown by M. H. Williams & Son, Sunderland, Mass.; not tested in the Seed laboratory.
*Failed to mature before frost.

FIELD TESTS OF CORN VARIETIES—Continued

Lab. No.	Sales Name	Number of Days to Ripening
	DENT VARIETIES—Continued	
958 F	Early Wonder Sweepstakes	*
1102 F	Yellow Sweepstakes	*
956 F	Hybrid Yellow Sweepstakes	*
1015 F	Hybrid Yellow Sweepstakes	*
671 F	Yellow Sweepstakes	*
106 F	Yellow Sweepstakes	*
874 F	Yellow Sweepstakes Type	*
762 F	Yellow Sweepstakes	*
876 F	Yellow Sweepstakes Type	*
922 F	Page's Golden Sweepstakes	*
888 F	Mammoth Yellow Sweepstakes	*
965 F	Mammoth Yellow Sweepstakes	*
930 F	Mammoth Yellow Sweepstakes	*
792 F	Mammoth Yellow Sweepstakes	*
1134 F	C. P. Ensilage	132
1199 F	Iowealth Ensilage Hybrid 2	140
923 F	Page's Lancaster Sure Crop	129
877 F	Lancaster Sure Crop Type	131
1086 F	Lancaster Sure Crop Type	135
892 F	Lancaster County Sure Crop	139
932 F	Lancaster Co. Sure Crop	139
1157 F	Lancaster Sure Crop	139
235 F	Lancaster Sure Crop	139
1135 F	Lancaster Sure Crop	139
672 F	Lancaster Sure Crop	*
852 F	Lancaster Sure Crop	*
793 F	Lancaster Co. Sure Crop	*
665 F	Lancaster Sure Crop	*
937 F	Page's Pride of the North	139
1148 F	White Cap Yellow Dent Type	140
1006 F	Indiana 608	*
450 F	Indiana Hybrid 608	*
449 F	U. S. 44	*
1016 F	Improved Leaming	137
964 F	Improved Leaming	137
236 F	Improved Leaming	138
822 F	Improved Leaming Type	138
825 F	Improved Leaming Type	138
104 F	Leaming	138
601 F	Improved Leaming	*
925 F	Page's Improved Leaming	*
829 F	Improved Leaming	*
666 F	Improved Leaming	*
1099 F	Improved Leaming	*
632 F	Improved Leaming	*
152 F	Improved Leaming	*
791 F	Improved Leaming Type	*
1101 F	Leaming Type	*
978 F	Improved Leaming	*
1132 F	Yellow Broad Kernel	*
673 F	Broad Grained Yellow	*
960 F	Early Yellow Dent	*
1051 F	Howard's Golden Beauty	*
1162 F	Selected Beauty	*

*Failed to mature before frost.

FIELD TESTS OF CORN VARIETIES—Concluded

Lab. No.	Sales Name	Number of Days to Ripening
	DENT VARIETIES—Concluded	
1155 F	Selected Beauty	*
1116 F	Excelsior Ensilage	136
763 F	Excelsior Ensilage	*
1014 F	Kato Ensilage	*
1103 F	Arco Ensilage	*
891 F	Early Eureka	138
931 F	Eureka Ensilage	*
921 F	Page's True Eureka	*
832 F	Eureka Ensilage	*
1013 F	Eureka Ensilage	*
602 F	Eureka Ensilage	*
149 F	Eureka Ensilage	*
105 F	Eureka	*
1098 F	Eureka	*
633 F	Eureka	*
823 F	White Dent Va. Late Eureka Type	*
1133 F	Va. Ensilage Eureka	*
1001 F	Va. Ensilage	*
890 F	Southern White	*

*Failed to mature before frost.

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MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

Control Series | Bulletin No. 108 | May, 1941

Twenty-first Annual Report on Eradication of Pullorum Disease in Massachusetts

By the Poultry Disease Control Laboratory

This bulletin reports results of pullorum disease testing for the 1940-41 season. Of the 527,328 birds tested, 492,475 were identified with non-reacting flocks. In six counties, all the tested flocks were classified as non-reacting. No reactors were detected among flocks tested in Worcester County, which led in the number of tested birds (89,041). Fewer "breaks" were encountered than during the previous season. The average percentage of infection (0.09) was the lowest in the testing history. These results indicate gradual progress in the establishment and maintenance of flocks free of pullorum disease.

MASSACHUSETTS STATE COLLEGE
AMHERST, MASS.

TWENTY-FIRST ANNUAL REPORT OF PULLORUM DISEASE ERADICATION IN MASSACHUSETTS 1940 - 1941

By the Poultry Disease Control Laboratory[1]

Introduction

Pullorum disease eradication in Massachusetts has made marked progress during the last decade. The elimination of the disease from breeding flocks represents a great monetary asset to the Massachusetts poultry industry. Buyers of hatching eggs, baby chicks, or adult stock have little or no difficulty in obtaining pullorum-free stock in Massachusetts.

This progress should be credited in part to the Massachusetts Department of Agriculture, the Extension Service, and other agencies which have cooperated in many phases of the program. However, the greatest credit belongs to the flock owners who have demonstrated that it is possible to maintain a flock free of infection once it has been eliminated.

Summary of Service Rendered

Applications received		349
Applications cancelled		15
Flocks tested		334
Chicken flocks	302	
Chicken and turkey flocks	7	
Turkey flocks	25	
Number of tests		547,110
Chickens:		
Routine	537,935	
Experimental	654	
Fowl other than chickens:		
Routine	2,888	
Experimental	5,633*	
Owners receiving necropsy service		21
Necropsies of reacting birds		45**

*Includes 4,104 paratyphoid tests.

**Includes 32 chickens and 13 turkeys.

Distribution of Tests and Reactors

The distribution of tests and reactors by counties and by breeds is presented in Table 1. A total of 538,589 samples was tested in 11 counties. Middlesex and Worcester Counties led in the number of tested samples.

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[1] Poultry Disease Control Laboratory Staff: H. Van Roekel, Chief of Laboratory; K. L. Bullis, Assistant Veterinary Pathologist; O. S. Flint, Assistant Research Professor; Miriam K. Clarke, Research Assistant; Felicia Jewett, Laboratory Assistant. Appreciation is extended to Dr. J. B. Lentz, Head of the Department of Veterinary Science, for the assistance given to the testing work.

TABLE 1. DISTRIBUTION OF TESTS AND REACTORS BY COUNTIES AND BY BREEDS

Breeds		Barnstable	Berkshire	Bristol	Essex	Franklin	Hampden	Hampshire	Middlesex	Norfolk	Plymouth	Worcester	Totals	Percent Positive Tests
Rhode Island Reds	(Total tests	1,987	3,020	60,466	29,186	30,941	14,730	17,685	64,611	64,403	24,703	73,066	384,798	
	(Positive tests	0	4	42	0	0	0	0	14	241	0	0	301	0.08
Barred Plymouth Rocks	(Total tests	1,134	4,283	12,560	1,990	13,721	1,431	2,662	13,477	8,380	9,905	11,572	84,115	
	(Positive tests	0	0	1	0	0	9	0	37	93	0	0	140	0.17
White Plymouth Rocks	(Total tests	....	632	1,524	2,049	....	471	....	6,584	1,978	11,340	188	24,766	
	(Positive tests	....	0	0	0	....	0	....	28	0	0	0	28	0.11
White Leghorns	(Total tests	....	4,403	1,940	4,550	162	57	61	....	1,455	....	....	12,628	
	(Positive tests	....	2	0	0	0	0	0	....	0	....	....	2	0.02
New Hampshires	(Total tests	....	....	2,271	4,714	3,819	69	375	3,490	....	8,676	4,040	27,454	
	(Positive tests	....	....	0	0	2	0	0	0	....	0	0	2	0.007
Miscellaneous	(Total tests	256	210	200	1,096	30	206	374	931	1,239	111	175	4,828	
	(Positive tests	0	4	0	0	0	1	0	0	0	0	0	5	0.10
Total Tests		3,377	12,548	78,961	46,585	48,673	16,964	21,157	89,093	77,455	54,735	89,041	538,589	
Positive Tests	(Number	0	10	43	0	2	10	0	79	334	0	0	478	
	(Percent	0.00	0.08	0.05	0.00	0.004	0.06	0.00	0.09	0.43	0.00	0.00	....	0.09

The average percentage of positive tests for all counties was 0.09, which is the lowest attained during the 21-year testing period. The majority of the 478 positive tests was confined to one flock. Five counties, Barnstable, Essex, Hampshire, Plymouth, and Worcester, had no reactors among their tested flocks. Barnstable, Essex, and Plymouth Counties have had no reactors for two successive years and Hampshire County has had no reactors for three successive years.

The following breeds and varieties were tested: Bantam, Barnevelder, Barred Plymouth Rock, Black Australorp, Brahmas, Brown Leghorn, Buff Orpington, Buff Plymouth Rock, Chantecler, Columbian Rock, Cornish, Golden Laced Wyandotte, New Hampshire, Rhode Island Red, Silver Laced Wyandotte, White American, White Leghorn, White Plymouth Rock, White Wyandotte, and Cross-breeds. The Rhode Island Red and Barred Plymouth Rock are the predominating breeds. Two reactors were detected in each of the New Hampshire and White Leghorn breeds.

Of the total number of samples tested, 490,759 (hens 48,964, pullets 441,795) were from females and 47,830 from males. Of these, 0.08 of the females and 0.17 percent of the males were positive. The higher percentage of reactors among the males is of interest, although it is difficult to evaluate this difference because both percentages are so small. It is evident, however, that males must be considered in a testing and eradication program if the infection is to be completely eliminated.

Testing of Fowl Other Than Chickens

A total of 4,417 samples collected from fowl other than chickens was tested for pullorum disease. The species tested included turkeys (4,259 tests), pheasants (115), guinea fowl (22), geese (13), ducks (5), and quail (3).

Seven reacting birds were detected in 3 of the 32 turkey flocks tested, but in only one instance was the causative organism of pullorum disease isolated. The testing history revealed that this infected bird was purchased from an out-of-state source. Whether or not the infection originated out of state could not be ascertained. No reactors were detected among the other fowl. These findings point out that pullorum infection is rare among turkey breeding flocks in Massachusetts. However, the fact that infected birds are detected indicates the necessity of testing breeding flocks. Pullorum-eradication measures recommended for chickens are applicable for turkey flocks.

During the past year, 4,104 turkey blood samples were tested for paratyphoid infection. The macroscopic tube agglutination method was employed. The technique was similar to that of the pullorum test except that an autogenous antigen of *S. typhi-murium* was used. While infected birds can be detected by such a procedure, the method can not be relied upon to eliminate the infection to the degree accomplished in pullorum-disease testing. Paratyphoid infection is a serious problem in some flocks. Owners of flocks that are apparently free of this infection should be cautious in introducing new stock. According to our present knowledge, turkey flocks tested for paratyphoid disease may not be free of the infection even though no reactors are found.

Annual Testing of Flocks

Table 2 shows results from flocks tested for the first time, intermittently, for two consecutive years, and for three or more consecutive years. The group tested for three or more consecutive years is the largest. The percentage of reactors in the different groups is of interest. The flocks tested for the first time showed the greatest amount of infection; those tested for two consecutive years revealed no reactors; those tested for three or more consecutive years revealed 0.08 percent infection which included one flock in which 275 reactors were detected.

Among the 210 flocks tested for three or more consecutive years, 206 were non-reacting and represented 405,151 birds (77 percent of all birds tested). All birds on the premises were tested in 84 percent of the flocks. Of the total birds tested, 88 percent were in 100 percent tested, non-reacting flocks.

TABLE 2. ANNUAL TESTING VERSUS SINGLE AND INTERMITTENT TESTING

Classification	Flocks	Birds	Total Tests	Positive Tests		Negative Flocks		Positive Flocks	
				Number	Percent	100% Tested	Partially Tested	100% Tested	Partially Tested
Tested for the first time....	33	19,776	20,826	90	0.43	22	8	2	1
Intermittent testing	25	29,606	30,259	43	0.14	15	7	1	2
Two consecutive years	41	40,801	40,810	0	0.00	34	7	0	0
Three or more consecutive years	210	437,145	446,694	345	0.08	185	21	1	3
Totals	309	527,328	538,589	478	0.09	256	43	4	6

These results show that owners who test their flocks annually are more successful in maintaining a non-reacting flock than those who do not test annually. Flock owners who follow a definite testing and an effective preventive program may expect to develop and maintain a non-reacting flock more readily than flock owners with little or no knowledge of pullorum-disease eradication and prevention.

Annual testing of all birds on the premises is necessary to determine the true status of a flock. Because sources of pullorum infection still exist in the State, pullorum-clean flocks are constantly subject to the possibility of infection. Flock owners should realize this fact and be on their guard constantly to prevent the introduction of infection.

Owners of infected flocks should replace their stock with purchases from known pullorum-clean sources. Massachusetts has a sufficient supply of pullorum-clean stock for flock replacements. Flock owners should not test their flocks unless with a definite objective in mind. Haphazard testing is profitable neither to the owner nor to the testing program.

Appearance of Infection in Flocks Previously Negative

During the past year infection was detected in five flocks which had been negative for two or more years. Table 3 gives a brief summary for each flock. The amount of infection detected was very small in all flocks. The source of infection could not be determined in three cases; whereas in two, the feeding of garbage and custom hatching were incriminated.

TABLE 3. APPEARANCE OF INFECTION IN FLOCKS PREVIOUSLY NEGATIVE

Flock	Number of Years Negative	1940–41 Season			Explanation for Infection
		Flock Total	Number Tested	Positive Tests Percent	
1	2	510	510	1.18	Feeding garbage
		486	486*	0.00	
2	4	1,300	1,280	0.16	Unknown
3	5	3,276	3,276	0.37	Unknown
		3,264	1,007*	0.00	
4	5	3,114	3,114	0.29	Unknown
		2,663	2,663*	0.04	
		2,660	684*	0.00	
5	9	1,066	941	0.11	Custom hatching

*Represents retests.

Flock 1 revealed six reacting birds among 510 tested. On retest no more reactors were detected.

Flocks 2 and 5 revealed two and one reactors respectively. Neither of these flocks was retested.

Flock 3 revealed 12 reactors among 3,276 birds tested and on partial flock retest revealed no reactors.

Flock 4 revealed 9 reactors among 3,114 birds tested. In a second test of part of the flock, one additional reactor was detected. A third test of the entire flock was negative.

Since the majority of "breaks" occurred in flocks which had been negative for more than two years, one is led to believe that the infection had been introduced recently from an outside source. It is difficult to conceive that the small amount of infection found could escape detection for four or more years. While the number of "breaks" may be considered small, poultrymen should appreciate the fact that many possible avenues exist through which pullorum infection may enter a flock. Therefore to avoid "breaks" one should observe the following preventive measures at all times as far as is humanly possible:

1. Birds removed from the premises to egg-laying contests, exhibitions, etc., should be held in quarantine and determined free of disease before they are readmitted into the flock.

2. Purchase of stock in the form of adults, chicks, and eggs should be from known pullorum-disease-free flocks.

3. Eggs from egg-laying contests should not be returned to premises and flocks which are recognized either as "pullorum passed" or as "pullorum clean," unless the contest is so operated as to attain the status of pullorum freedom.

4. Eggs should not be saved for hatching until after a flock has been tested and birds found free of infection.

5. Poultrymen should not custom hatch for untested or infected flocks (including fowl other than chickens).

6. Owners of pullorum-disease-free flocks should not have hatching done where infected eggs or stock may be found.

7. Fresh and infertile eggs from unknown or infected sources should not be fed to chickens or exposed to animals such as crows, sparrows, and skunks, which may carry or spread infection.

8. Offal from all birds dressed for market or home consumption, as well as dead birds that are not fit for consumption, should be burned.

9. Garbage should not be fed to chickens.

10. Poultrymen should not buy feed in bags that have been used or exposed to infection. (Such bags, if properly disinfected, will be safe for further use.)

11. Poultrymen should not permit visitors, hen buyers, and feed dealers on the poultry ranges and in the poultry houses and other buildings.

12. Poultrymen should not use equipment that has been exposed to or contaminated with infective material unless it is properly cleaned and sterilized or disinfected.

13. Poultrymen should regard fowl other than chickens as a possible source of pullorum infection unless tested and found free from pullorum disease.

Non-Reacting and Positive Flocks Classified by Counties

Table 4 gives the distribution of non-reacting and positive flocks among the 11 counties. A total of 299 flocks (including partially tested) representing 492,475 birds was identified as non-reacting; and a total of 256 flocks (100 percent tested) representing 463,603 birds was found to be non-reacting. This number of birds is slightly higher than that of the previous season. Worcester and Middlesex Counties lead in the number of birds in non-reacting flocks.

Only 10 flocks were classified as infected at the close of the testing season. A total of 34,853 birds was tested in these 10 flocks located in 5 counties. Among the 10 flocks, only 6 revealed more than 1 percent infection. In one flock, 241 reactors were detected among 5,200 birds tested revealing a percentage of infection of 4.63. This number of reactors represented the bulk of the reactors detected for all the flocks tested. A retest of this flock revealed that the percentage of infection had been reduced from 4.63 to 0.73. In another infected flock, 38.92 percent reactors were detected. This flock was tested for the first time. It is rather unusual to find a flock with such high infection.

TABLE 4. NON-REACTING AND POSITIVE FLOCKS CLASSIFIED BY COUNTIES

County	100% Tested		Partially Tested		Total	
	Flocks	Birds	Flocks	Birds	Flocks	Birds
Non-Reacting Flocks						
Barnstable	2	3,377	—	—	2	3,377
Berkshire	5	8,412	1	3,601	6	12,013
Bristol	39	69,628	7	4,903	46	74,531
Essex	26	41,783	7	4,149	33	45,932
Franklin	25	45,830	1	1,563	26	47,393
Hampden	18	16,793	1	52	19	16,845
Hampshire	18	20,848	1	309	19	21,157
Middlesex	42	82,057	8	4,871	50	86,928
Norfolk	20	36,580	8	3,943	28	40,523
Plymouth	26	51,660	3	3,075	29	54,735
Worcester	35	86,635	6	2,406	41	89,041
Totals	256	463,603	43	28,872	299	492,475
Positive Flocks						
Bristol	—	—	2	1,074	2	1,074
Franklin	1	1,280	—	—	1	1,280
Hampden	1	119	—	—	1	119
Middlesex	1	50	2	1,108	3	1,158
Norfolk	1	1,449	2	29,773	3	31,222
Totals	4	2,898	6	31,955	10	34,853

These results are very encouraging since so few flocks were classified as infected at the close of the testing season. It represents the lowest number of positive flocks for any one year during the 21-year testing period. Also, the amount of infection in the positive flocks was slight with a few exceptions. The Massachusetts poultry industry is in a fortunate and enviable position in regard to its supply of pullorum-free stock. Every precaution should be taken to maintain or improve this position. More local buying from pullorum-free flocks should be encouraged to help stamp out pullorum infection.

Comparison of 1939–40 and 1940–41 Testing

Table 5 gives a comparison of the 1939–40 and 1940–41 testing results for the different counties. Fewer flocks, birds, and samples were tested during the past year than in 1939–40. The decrease in birds and tests is largely accounted for by one large flock which was tested only partially. Aside from this the number of tested birds and tests in the various counties has changed only slightly when compared with 1939–40. The percentage of infection was less in those counties which revealed infection during the previous season. The number of non-reacting flocks is less for 1940–41, but the number of birds in those flocks is approximately the same as in the previous season. The average percentage of infection for the State as a whole was reduced from 0.51 to 0.09 which is the lowest in the testing history.

TABLE 5. COMPARISON OF 1939-40 AND 1940-41 TESTING

County	Flocks	Birds	Tests	Positive Tests Percent	Non-Reacting Flocks
1939–40 Season					
Barnstable	2	3,353	3,353	0.00	2
Berkshire	10	13,468	13,468	0.34	8
Bristol	49	73,955	75,025	0.09	46
Dukes	1	538	538	0.00	1
Essex	28	44,885	44,885	0.00	28
Franklin	36	48,772	50,943	0.06	34
Hampden	19	16,016	16,016	0.00	19
Hampshire	26	26,233	26,233	0.00	26
Middlesex	58	85,101	105,125	0.15	55
Norfolk	33	110,351	185,841	1.67	29
Plymouth	32	58,671	60,138	0.04	32
Worcester	52	91,657	91,657	0.00	52
Totals	346	573,000	673,222	0.51	332
1940–41 Season					
Barnstable	2	3,377	3,377	0.00	2
Berkshire	6	12,013	12,548	0.08	6
Bristol	48	75,605	78,961	0.05	46
Essex	33	45,932	46,585	0.00	33
Franklin	27	48,673	48,673	0.004	26
Hampden	20	16,964	16,964	0.06	19
Hampshire	19	21,157	21,157	0.00	19
Middlesex	53	88,086	89,093	0.09	50
Norfolk	31	71,745	77,455	0.43	28
Plymouth	29	54,735	54,735	0.00	29
Worcester	41	89,041	89,041	0.00	41
Totals	309	527,328	538,589	0.09	299

Twenty-One-Year Testing Period Shows Progress in Eradication

Table 6 presents data for a 21-year testing period, showing that Massachusetts has made marked progress in eliminating pullorum disease from its flocks. The table also points out that flocks once established free of the disease can be maintained at such a status.

TABLE 6. TWENTY-ONE-YEAR PULLORUM DISEASE TESTING SUMMARY

Season	Flocks	Birds	Total Tests	Positive Tests Percent	Non-reacting Flocks	Birds in Non-reacting Flocks	
						Number	Percent
1920-21	108	24,718	24,718	12.50	25	2,414	9.77
1921-22	110	29,875	29,875	12.65	27	4,032	13.50
1922-23	121	33,602	33,602	7.60	29	5,400	16.07
1923-24	139	59,635	59,635	6.53	38	11,082	18.58
1924-25	156	66,503	66,503	2.94	79	25,390	38.18
1925-26	201	67,919	67,919	2.31	124	33,615	49.49
1926-27	249	127,327	127,327	4.03	114	40,269	31.63
1927-28	321	190,658	232,091	6.52*	138	80,829	42.39
1928-29	413	254,512	304,092	4.25*	228	153,334	60.25
1929-30	460	331,314	386,098	2.17	309	203,038	66.97
1930-31	447	356,810	402,983	1.47	328	267,229	74.89
1931-32	455	377,191	420,861	0.90	355	298,534	79.15
1932-33	335	296,093	300,714	0.47	276	238,071	80.41
1933-34	262	263,241	284,848	0.53	229	212,782	80.83
1934-35	244	281,124	301,887	0.39	213	251,778	89.56
1935-36	252	329,659	344,081	0.30	230	315,215	95.95
1936-37	307	448,519	461,762	0.37	281	424,431	94.63
1937-38	308	480,227	497,769	0.17	286	457,466	95.26
1938-39	355	571,065	615,205	0.34	327	469,134	82.15
1939-40	346	573,000	673,222	0.51	332	497,356	86.80
1940-41	309	527,328	538,589	0.09	299	492,475	93.39

*Based on total birds tested: 1927-28, 190,658 birds; 1928-29, 254,512 birds.

Comments and Suggestions

In view of the progress that has been made in pullorum-disease eradication, it should be recognized that a continued effort must be made to employ sound effective measures to further maintain and establish pullorum-free flocks. A few items should receive special consideration in this report:

1. *Annual Testing of Flocks*:—In determining the pullorum status of a flock, it should be tested annually. This measure is based on the fact that pullorum infection can be introduced into a flock after it has once been free of this disease. Fortunately such "breaks" occur very seldom; but since they do occur, it becomes necessary to test flocks at least once a year. The discontinuance of testing for even one year may permit conditions whereby a flock may become heavily infected. In flocks previously negative that have become reinfected, the amount of infection is usually small. Annual testing in such cases prevents the infection from multi-

plying and spreading in a flock. Therefore, breeding flocks should be tested annually as long as there exists the possibility of reinfection from avenues of infection over which control is not complete at the present time. Annual testing is a safeguard to the flock owner and to his customers.

2. *Testing All Birds on the Premises*:—During the past year, 49 of the 309 flock owners tested only part of their flocks. Only 6 of the 49 flocks revealed infection. This, of course, does not mean that no infection existed in the other 43 flocks. In cases where the amount of infection is small, it is possible that the disease might exist among the untested birds, which in turn could serve as a possible source of infection for the tested birds. Infection may spread from one adult bird to another, either by direct contact or indirectly, through contaminated litter, eggs, etc. Therefore, to determine whether or not a flock is infected, all birds on the premises must be tested before the breeding flock can be regarded as reliably free from pullorum infection.

3. *Official Recognition of Pullorum-Free Flocks*:—The Massachusetts Department of Agriculture recognizes two official grades for pullorum-free flocks: "Massachusetts Pullorum Passed" and "Massachusetts Pullorum Clean." In the final list published by the Department in April 1941, 186 "Pullorum Clean" flocks representing 384,738 birds, and 27 "Pullorum Passed" flocks representing 33,639 birds were reported. According to the number of 100 percent tested, non-reacting flocks, not all flock owners whose flocks were eligible for either one of the two grades applied for recognition. In order to make the fullest use of such flocks, their owners are urged to have their names appear on the official list published by the Massachusetts Department of Agriculture. This list serves as a useful guide in locating officially recognized pullorum-free stock.

4. *Local Buying of Stock*:—Local buying of pullorum-free stock is recommended. Such a practice will permit greater interest and closer cooperation between the seller and buyer. Purchases should not be based entirely on the merit of advertisements, because claims in an advertisement may be misleading and at times are false. Every purchaser should carefully investigate before he buys and should remember that the lowest-priced chick is frequently the most expensive chick if quality in breeding and freedom from pullorum disease are lacking.

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MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

CONTROL SERIES BULLETIN NO. 109 SEPTEMBER, 1941

Inspection of Commercial Fertilizers and Agricultural Lime Products

By Fertilizer Control Service Staff

This is the sixty-eighth report of the Massachusetts Fertilizer Control made in accordance with Chapter 94, Sections 250 to 261, inclusive, of Massachusetts General Laws 1920, as amended by Chapter 67, Acts of 1933.

Massachusetts State College
Amherst, Mass.

INSPECTION OF COMMERCIAL FERTILIZERS AND AGRICULTURAL LIME PRODUCTS FOR THE SEASON OF 1941

By Fertilizer Control Service Staff:

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INTRODUCTION

This bulletin presents detailed analytical and statistical data pertaining to the work of the Massachusetts Fertilizer Control Service on mixed and unmixed fertilizers and on liming materials for the season of 1941.

As in past years, an effort was made to secure a sample of at least one lot of every brand of fertilizer sold in the state. While, for various reasons, it was impossible to attain this goal entirely, enough brands were sampled to insure a thorough inspection of all but a comparatively few brands which in most instances represent only small tonnages.

If two or more samples of the same brand were collected, at least two samples were taken for analysis. Whenever the first samples analyzed have shown an appreciable deficiency, one or more other samples of the same brand, if available, have been analyzed. This has been done not only to determine the prevalence of such deficiencies in other lots of the same brand, but also to protect the manufacturer from unjust criticism and possible condemnation of a particular brand on the strength of one analysis which may conceivably represent the only lot, out of many of that brand, which is deficient.

Although there are only two samples less than last year in the table of seriously deficient mixed fertilizers, considerable improvement is noted in the number of minor deficiencies. This improvement is reflected somewhat in the table of average variation from guaranteed analysis, which shows five average plant food shortages as compared with nine for 1940.

Although some of the shortages noted are of a serious nature, in twenty of the twenty-nine samples the shortages in one plant food element are accompanied by large overruns in other plant food elements, indicating either improper mixing or the occurrence of segregation after mixing. Most of the serious deficiencies found may be attributed to mistakes on the part of the manufacturer or to the unavoidable variations which may be considered as almost inherent in any product as complex in composition and manufactured in tonnages as large and in grades as varied as is mixed commercial fertilizer. With no intention of minimizing the importance of the obligation on the part of the manufacturer to maintain the guarantees on his products as scrupulously as possible, it is, nevertheless, only fair to state that none of the shortages found in mixed fertilizers during 1941 appears to be the result of a deliberate attempt to defraud the consumer.

PERTINENT FACTS RELATING TO MASSACHUSETTS FERTILIZER LAW

Commercial Fertilizers

Registration is required annually on January 1.

Registration fee is $8 for each element: nitrogen, phosphoric acid, potash, magnesia.

Label must show:

- Net weight of fertilizer
- Name, brand or trade mark, and grade
- Name and address of manufacturer
- Guaranteed analysis: nitrogen, available phosphoric acid, water soluble potash. A guarantee of total phosphoric acid may be used instead of available phosphoric acid for bone, untreated phosphate rock, tankage, dried and pulverized manures, ground seeds, and wood ashes

Tonnage reports are required semi-annually, on January 1 and July 1.

Tonnage fee: 6 cents per ton of 2,000 pounds.

Lime Products

Registration is required annually on January 1.

Registration fee: $12 for each brand.

Label must show:

- Net weight of product
- Name, brand or trade mark, and form of lime
- Name and address of manufacturer
- Guaranteed analysis: calcium oxide, magnesium oxide, carbonates of calcium and magnesia, or calcium sulphate (in gypsum or land plaster)

Make checks payable to Massachusetts Agricultural Experiment Station and send correspondence to

PHILIP H. SMITH,

Massachusetts Agricultural Experiment Station

Amherst, Mass.

The Massachusetts Fertilizer Law is essentially a true labelling law. In the words of Dr. Goessmann, it endeavors to persuade the manufacturers of fertilizers to "state what they sell and to sell what they state." With minor exceptions, there are no restrictions imposed on the kind or grade of fertilizer which may be sold provided it is correctly labelled. For all practical purposes there is no prescribed minimum percentage of total plant food which a fertilizer must contain before it can be registered for sale. However, "the director or his authorized deputy may refuse to issue a certificate for any fertilizer or brand of fertilizer which does not contain at least one-half of one per cent of nitrogen, or one-half of one per cent of potash soluble in distilled water, or one per cent of phosphoric acid, or five per cent of calcium oxide, or five per cent of magnesium oxide, or which contains its potash, phosphoric acid, calcium or magnesium oxides in forms substantially insoluble by the methods of analysis for commercial fertilizers and agricultural lime products prescribed by the Association of Official Agricultural Chemists of North America, or which does not possess substantial properties as a fertilizer."

It will be noted that registrations of fertilizers are required annually on January 1. The law specifically states that each fertilizer shall be registered *before* it is sold. Some manufacturers have consistently followed the practice of waiting until inspectors have sampled their products before registering. There has been, also, a tendency on the part of some manufacturers to greatly delay transmitting the required reports of the total tonnage of their fertilizer sales for each six months period. This has necessitated a great deal of correspondence which could be easily eliminated with a little more cooperation.

Inquiries are received from time to time regarding the necessity of registering liquid fertilizers, chemical salts, etc., which are usually marketed in small packages intended for use on potted flower plants, lawns, flower gardens, and tank growing of plants. The Massachusetts Fertilizer Law includes such products under its regulations and they should be registered before being sold in this state.

In order to protect themselves, dealers should ascertain whether such products are registered and labelled as required by the Massachusetts Fertilizer Law before accepting them for resale. If for any reason the manufacturer refuses to comply with the registration provision of the law, the dealer, as the seller, will be held responsible for the amount of the registration fee as well as for the fulfillment of the other provisions of the law not observed by the manufacturer.

Manufacturers and Brands

Registrations have been perfected in Massachusetts during 1941 by 98 firms, covering 498 brands of mixed fertilizer and unmixed fertilizing materials.

The following brands were not found on display by the sampling agent at any point in the state and therefore do not appear in the tables of analyses.

Brands of Fertilizer Registered but Not Sampled

Agro-Chem Laboratories, Inc.
Vitamone Concentrate (liquid fertilizer) 8–10–8

American Cyanamid Co.
20.6% "Aero" Cyanamid Granular (20.6–0–0)

Apothecaries Hall Co.
Liberty Corn Fertilizer 3–12–6
Liberty High Grade Corn Fertilizer 4–12–4
Liberty Tobacco Starter with Potash 5–5–15
Liberty Truck Garden & Onion Fertilizer 5–10–5
Sulphate of Ammonia (20.5–0–0)

Armour Fertilizer Works
Armour's Big Crop Fertilizer 0–20–10
Armour's Big Crop Fertilizer 3–10–4
Armour's Big Crop Fertilizer 4–12–4
Armour's Big Crop Fertilizer 4–16–20
Armour's Big Crop Tobacco Special 5–3–5
Armour's Fertilizer 0–20–20
Armour's Special Tree Food Mixture 10–8–6

Ashcraft-Wilkinson Co.
Coweta Brand 41% Cottonseed Meal (6.56–0–0)

Baugh & Sons Co.
Baugh's Truckers Favorite 5–10–5
Muriate of Potash (0–0–50)

Berkshire Chemical Co.
Cotton Hull Ash (0–0–30)
Emjeo (30% magnesium oxide)
Berkshire Precipitated Bone Phosphate (0–38–0)

Brewer Tree Expert Co.
Brewer Tree Food 10–6–4

W. Atlee Burpee Co.
Burpee-Gro 7–13–26

Comfort Manufacturing Co.
Craig Concentrated Liquid Plant Food 9–6–3

Consolidated Rendering Co.
Corenco 5–8–7 for Gardens
Corenco 5–9–8
Corenco 8–6–4

Eastern States Farmers' Exchange
Eastern States Castor Pomace (5–0–0)

Thomas W. Emerson Co.
Vitamin B_1 Plant Food 4–12–4

Goulard & Olena, Inc.
G & O Sheep Manure (1–1–2)

Greenlands Services, Inc.
Lawn & Grass Fertilizer 6–8–6
Shrubs and Trees 6–8–8

Hartney-Amalia, Inc.
Rhozalia Food 5–7–6

Humphreys-Godwin Co.
Bull Brand Prime 43% Protein Cottonseed Meal (6.88–0–0)
Dixie Brand Prime 41% Protein Cottonseed Meal (6.58–0–0)

National Plant Foods, Inc.
Hy-Gro 13–26–13

Old Deerfield Fertilizer Co., Inc.
Ammo-Phos (11–48–0)
Old Deerfield Cotton Hull Ashes (0–0–35)

Organo, Inc.
Triple Superphosphate (0–47–0)

Rogers & Hubbard Co.
Red H Brand 3–10–4
Red H Brand 8–16–20

Standard Wholesale Phosphate & Acid Works, Inc.
Standard 4–8–10

Swift & Company Fertilizer Works
Swift's N/eL 3–12–6
Swift's Red Steer 4–8–10
Swift's Special Golf Fertilizer 6–12–4

Tennessee Corporation
Loma 10–6–4

Drawing of Samples

Between April 1 and June 15, three sampling agents made a thorough canvass of the state: James T. Howard in Hampshire, Hampden, Franklin, and Berkshire Counties; Louis A. Graves in Norfolk, Bristol, Plymouth, Barnstable, and Dukes Counties; and Comfort L. Whiting in Essex, Middlesex, Suffolk, and Worcester Counties. They visited 144 towns, took 1,654 samples, representing 453 brands, from stock in the possession of 393 agents or owners, and called at 250 places where no samples were drawn because the agency had been discontinued, the stock was all sold out, or sufficient samples had already been taken of the brands found. They sampled 21,124 sacks, representing 8,433 tons of fertilizer. One ton was sampled to every seven and nine-tenths tons sold in the state.

FERTILIZER TONNAGE

Tonnage of Mixed and Unmixed Fertilizers Sold in Massachusetts

	July 1, 1938, to July 1, 1939	July 1, 1939, to July 1, 1940	July 1, 1940, to July 1, 1941
Mixed fertilizers	41,616	43,736	46,212
Fertilizer chemicals and materials unmixed	20,800*a*	19,673*b*	18,613*c*
Pulverized natural manures	1,558	1,589	1,414
Totals	63,974	64,998	66,239

a Does not include 876 tons of 45% superphosphate and 903 tons of 47% superphosphate distributed by the A.A.A.

b Does not include 2,305 tons of 47% superphosphate distributed by the A.A.A.

c Does not include 9,192 tons of 20% superphosphate distributed by the A.A.A.

There were 1,241 tons more fertilizer sold in the state in 1941 than during the previous year. The tonnage of mixed fertilizer was 2,476 more, and that of the fertilizer chemicals and unmixed materials was 1,060 less than for 1940. Pulverized manures showed a decrease of 175 tons. Of the total tonnage sold, 69.8 per cent was mixed fertilizer, 28.1 per cent was unmixed materials, and 2.1 per cent was dried and pulverized natural manures.

The tonnage tables present figures for one year, July 1, 1940, to July 1, 1941, for both mixed fertilizers and unmixed fertilizer materials. In case of the mixed fertilizers, the grade represents the plant food guarantee and is expressed in the order of nitrogen, available phosphoric acid, potash.

Of the 46,212 tons of mixed fertilizer sold, 71 per cent was furnished by 10 grades and 150 brands. High analysis grades totaled 4,492 tons and 30 brands, which is 392 tons more than in 1940. Although the total tonnage of mixed fertilizers shows an increase of 2,476 tons, or 5.7 per cent, the high analysis grades show an increase of 9.5 per cent.

The following table shows the progressive increase in the manufacture of high analysis grades for the past five years. A grade is considered as high analysis if the guaranteed plant food elements total 30 per cent or more.

	1937	1938	1939	1940	1941
High analysis (tons)	3,267	3,358	3,523	4,100	4,492
All mixed fertilizers (tons)	48,527	45,339	41,616	43,736	46,212
Per cent high analysis	6.8	7.4	8.5	9.4	9.7

Tonnage of Mixed Fertilizers

Grade	Tonnage	Brands	Grade	Tonnage	Brands
5-8-7	11,941	31	4-3-12	114	-
4-8-4	3,754	21	7-7-5	114	-
6-3-6	2,733	12	8-8-8	108	-
7-7-7	2,692	14	10-5-5	107	-
5-10-10	2,333	11	6-7-4	105	-
4-8-10	2,285	18	4-12-10	104	-
4-8-7	2,234	15	6-8-2	103	-
8-16-16	1,986	7	8-8-4	76	-
5-8-10	1,663	10	12-4-4	70	-
5-10-5	1,401	11	8-6-4	69	-
6-3-7	994	-	4-9-3	65	-
4-12-4	968	9	7-7-6	64	-
5-6-4	636	-	5-7-3	62	-
5-5-15	610	11	5-12-6	55	-
7-6-6	572	8	8-5-2	55	-
3-10-4	542	8	6-6-5	53	-
10-10-10	486	-	7-3-7	44	-
8-16-14	433	6	6-12-4	40	-
8-16-20	426	5	6-3-2	38	-
3-10-6	421	-	7-8-4	31	-
4-16-20	402	-	10-8-6	31	-
8-24-8	361	-	4-8-5	28	-
3-12-6	306	6	8-6-3	22	-
8-6-2	305	6	3-7-6	22	-
5-15-5	304	-	3-3-3	20	-
5-3-5	281	-	5-5-10	17	-
10-6-4	262	-	2-10-2	15	-
6-8-9	175	-	5-6-2	15	-
4-12-6	172	-	6-8-4	15	-
5-5-5	159	-	8-6-6	15	-
8-5-8	156	-	5-8-4	14	-
5-10-4	144	-	5-9-8	14	-
6-12-12	143	-	9-6-6	14	-
7-14-21	130	-	5-4-8	13	-
4-10-4	129	-	.08-.16-.10	12	-
7-5-3	127	-	5-8-5	11	-
8-16-8	123	-	5-8-6	10	-
8-4-8	119	-	Miscellaneous	69	13
0-20-20	117	-	Special mixtures	1,353	-
			Totals	46,212	329

Tonnage of Unmixed Fertilizing Materials

Material	Tonnage	Brands	Material	Tonnage	Brands
Superphosphate 20%	3,684	11	Wood ashes	90	-
Nitrate of soda	3,149	-	Castor pomace	77	-
Superphosphate 16%	2,327	10	Urea	63	-
Cottonseed meal-castor pomace	2,058	5	Cotton hull ashes	48	-
Bone meal	1,464	21	Superphosphate 47%	35	-
Pulverized animal manures	1,414	23	Bone and tankage	33	-
Milorganite	1,195	-	Uramon	25	-
Muriate of potash 60%	972	7	Sulfate of potash	25	6
Sulfate of ammonia	796	10	Cal-Nitro	13	-
Cyanamid	650	-	Basic slag phosphate	11	-
Cottonseed meal	418	6	Ammo-Phos	11	-
Nitrate of soda-potash	391	-	Soybean meal	10	-
Muriate of potash 50%	295	9	Dried blood	9	-
Tankage	239	6	Superphosphate 40%	9	-
Process tankage	160	-	Precipitated bone	6	-
Fish	127	7	Sulfate of potash-magnesia	1	-
Peat	126	-	Horn and hoof meal	1	-
Linseed meal	95	-	Totals	20,027	168

MIXED FERTILIZERS

Deficiency Statistics for Mixed Fertilizers

Manufacturer.	Number of Brands.		Number of Tests or Determinations.				
	Analyzed	With no Deficiencies	Totals	Not Exceeding ¼ Per Cent Below Guarantee	Between ¼ and ½ Per Cent Below Guarantee	Between ½ and ¾ Per Cent Below Guarantee	More than ¾ Per Cent Below Guarantee
Acme Guano Co.	9	8	27	1	0	0	0
Agricultural Laboratories, Inc.	1	1	3	0	0	0	0
American Agricultural Chemical Co.	37	15	110	18	4	1	4
Apothecaries Hall Co.	10	9	30	1	0	0	0
Armour Fertilizer Works	17	7	51	8	2	0	1
Ernest J. Bantle	1	1	3	0	0	0	0
F. A. Bartlett Tree Expert Co., Inc.	1	1	3	0	0	0	0
Baugh & Sons Co.	5	4	15	1	0	0	0
Belmont Gardens	1	0	3	1	0	0	0
Berkshire Chemical Co.	13	5	39	6	2	1	0
Joseph Breck & Sons Corporation	4	4	12	0	0	0	0
Collins Seed Service Co.	4	1	12	2	0	0	1
Consolidated Rendering Co.	20	17	60	3	0	0	0
Davey Tree Expert Co.	1	0	3	1	0	0	0
Davison Chemical Corporation	2	0	6	2	0	0	1
Eastern States Farmers' Exchange	17	11	65	4	1	2	1
Ellis Chemicals, Inc.	1	0	3	0	1	0	0
Thomas W. Emerson Co.	6	5	18	1	0	0	0
Excell Laboratories	1	1	3	0	0	0	0
H. L. Frost & Higgins Co.	2	2	6	0	0	0	0
Garden Hose Spray Co., Inc.	1	0	3	0	0	0	1
Goulard & Olena, Inc.	2	0	6	2	1	0	0
Greenlands Services, Inc.	3	3	9	0	0	0	0
Thomas J. Grey Co.	1	0	3	1	0	0	0
Hartney-Amalia, Inc.	1	0	3	0	1	0	0
Henderson & Herndon Tree Co., Inc.	1	1	3	0	0	0	0
Hixon Tree Co.	1	1	3	0	0	0	0
A. H. Hoffman, Inc.	1	1	3	0	0	0	0
Hydroponic Chemical Co., Inc.	1	1	3	0	0	0	0
Hy-Trous Corporation	1	0	3	0	1	0	0
International Agricultural Corp.	16	6	53	9	1	1	0
Kem Laboratories	1	1	3	0	0	0	0
John D. Lyon, Inc.	1	1	3	0	0	0	0
McClain Brothers Co.	1	0	3	0	0	1	0
Mechling Bros. Chemicals, Division of General Chemical Co.	1	1	3	0	0	0	0
Miller Chemical & Fertilizer Corp.	4	2	12	3	0	0	0
New England Toro Co.	3	3	9	0	0	0	0
New England Tree Expert Co., Inc.	1	0	3	1	0	0	0
Old Deerfield Fertilizer Co., Inc.	18	15	56	3	0	0	0
Olds & Whipple, Inc.	12	12	36	0	0	0	0
Organo, Inc.	6	5	18	1	0	0	0
F. G. Phillips Co.	1	1	3	0	0	0	0
Plantabbs Co.	1	1	3	0	0	0	0
Plantspur Products Co.	1	0	3	1	0	0	0
Ra-Pid-Gro Corporation	1	0	3	0	0	0	3
Rogers & Hubbard Co.	28	17	84	5	3	1	2
William H. Rorer, Inc.	1	1	3	0	0	0	0
James A. Sawyer	1	1	3	0	0	0	0
O. M. Scott & Sons Co.	1	1	3	0	0	0	0
Standard Wholesale Phosphate & Acid Works, Inc.	6	1	18	4	2	1	0
Swift & Co. Fertilizer Works	8	2	24	7	0	0	0
F. Sylvester & Son	1	0	3	1	0	0	0
Tennessee Corp.	1	0	3	1	0	0	0
Universal Chemical Co.	1	0	3	1	0	0	0
Virginia-Carolina Chemical Corp.	1	1	3	0	0	0	0
C. P. Washburn Co.	4	3	12	1	0	0	0
Winslow Nurseries	1	1	3	0	0	0	0
Wirthmore Retail Stores	4	3	12	0	1	0	0
Woodruff Fertilizer Works, Inc.	7	4	21	2	1	0	0
Totals	299	182	917	92	21	8	14

Serious Commercial Shortages in Mixed Fertilizers

Amount of Shortage Per Ton.	Number of Samples
Between $4 and $5	2
Between $3 and $4	4
Between $2 and $3	6
Between $1 and $2	12

Of the 299 brands analyzed, 182, or 61 per cent, showed no deficiencies. Out of 917 plant food guarantees made, 85 per cent were fully maintained.

The deficiency table shows the following statistics:

Deficiencies not exceeding ¼ of one per cent, 92
Deficiencies between ¼ and ½ of one per cent, 21
Deficiencies between ½ and ¾ of one per cent, 8
Deficiencies more than ¾ of one per cent, 14

Seventeen firms have registered five or more brands of mixed fertilizers. On the basis of composition found by analysis as well as of tonnage sold, the following table shows to what extent each manufacturer was successful in avoiding deficiencies in plant food guarantees in his mixtures. Four of the seventeen firms have an average deficiency in one or more plant food elements.

Average Variation from Guaranteed Analysis

Manufacturer	Average Percentage of Plant Food Above or Below the Minimum Guarantee		
	Nitrogen	Available Phosphoric Acid	Water Soluble Potash
Acme Guano Co.	+	+	+
American Agricultural Chemical Co.	+	+	+
Apothecaries Hall Co.	+	+	+
Armour Fertilizer Works	+	+	+
Baugh & Sons Co.	— .04	+	+
Berkshire Chemical Co.	+	+	+
Consolidated Rendering Co.	+	+	+
Eastern States Farmers' Exchange	+	+	+
Thomas W. Emerson Co.	+	+	+
International Agricultural Corp.	+	+	— .07
Old Deerfield Fertilizer Co., Inc.	+	+	+
Olds & Whipple, Inc.	+	+	+
Organo, Inc.	+	+	+
Rogers & Hubbard Co.	+	+	+
Standard Wholesale Phosphate & Acid Works, Inc.	— .21	+	— .19
Swift & Company Fertilizer Works	+	+	+
Woodruff Fertilizer Works, Inc.	— .06	+	+

Explanation of Tables of Analyses

Guarantee. The plant food guarantee or the grade of each fertilizer is made a part of the trade name under the heading "Name of Manufacturer and Brand," and is expressed as nitrogren, available phosphoric acid, and water soluble potash and in that order.

Mixtures Showing a Commercial Shortage of $1 or More per Ton. A study of the following table will show that apparently either improper mixing or segregation after mixing is still playing a major role in causing serious deficiencies. The deficiencies found in the high analysis grades showing plant food content greatly disproportionate to the guaranteed analysis are probably due to the effect of segregation. Some of these mixtures are composed of particles varying greatly in shape, size, and specific gravity. Under these conditions, even with very thorough mixing to obtain a uniform mixture and careful subsequent handling of the fertilizer, segregation probably cannot be entirely eliminated. Once segregation has occurred it is almost impossible to obtain a sample which will yield an analysis closely resembling the guaranteed analysis.

The adequacy of existing sampling methods in obtaining representative samples of fertilizer mixtures possessing pronounced segregative tendencies has been questioned, and the suggestion made that sampling methods be revised and adapted to cope with the qualities peculiar to such mixtures. This would seem to be putting the cart before the horse.

Past experience has established fairly definitely that present methods of sampling employed by the fertilizer control agencies of most states are fully adequate for securing representative samples of reasonably well mixed fertilizers. There is a serious question whether it is possible or even desirable for any sampling method to do more. It is very difficult to determine what constitutes a representative sample of a badly segregated mixture.

The manufacturer's concern over the condition of his product should not cease even when he has added all the necessary ingredients in the proper proportions and his own chemists have found the fertilizer as it is in the curing bins or as it comes from the bagging mill comfortably above guarantee in all elements. There is an obligation on his part to market a well mixed fertilizer of uniform composition containing ingredients of such particle size that it will withstand all the rough handling to which fertilizer is usually subjected and will reach the farmer and eventually the soil with every portion of the fertilizer still containing the plant food elements in substantially the same proportion as guaranteed on the tag.

Some manufacturers are prone to pass over this problem too lightly, implying that there is no practical difference as far as crop yield is concerned whether one plant food element is 2 or 3 per cent under guarantee and another 2 or 3 per cent over guarantee, or whether all plant food elements are as guaranteed. However, if with all the care exercised by the inspectors in obtaining official samples it is not possible in some instances to secure samples which will show a deficiency of less than 2 per cent in one element and an overrun of less than 2 per cent in another, there is ample justification for assuming that the fertilizer represented by such an analysis will reach the soil, after it has undergone considerably more handling and has been agitated in a drill attachment or fertilizer sower, in an even more unbalanced condition. That a fertilizer possessing segregative qualities is still further segregated during its application to the soil has been shown in work done by Mehring, A. L., White, L. M., Ross, W. H. and Adams, J. E., U. S. Dept. of Agriculture Tech. Bull. 485 (1935). Also W. H. Ross, of the Fertilizer Research Division, Bureau of Plant Industry (Ross et al., Jour. A.O.A.C. Vol. 24, No. 2, 499, 1941) states: "for many years numerous field tests have been made to de-

termine the best fertilizer grades for different soils and crops, and the number of grades now sold in this country is probably in excess of 1,000. If a fertilizer of a certain grade is better adapted to a given set of conditions than any other, then the effectiveness of the fertilizer must necessarily be impaired by any segregation that would change the grade of the fertilizer in the process of its distribution in the field."

Under the heading "Approximate commercial shortage per ton" is shown the commercial valuation of the deficiencies or tests found below the guarantee. No allowance is made for the value of overruns in other elements which are above guarantee. The manufacturer makes a definite guarantee regarding the minimum percentage of each element which each grade shall contain. If a farmer buys a 5–8–7 fertilizer he has every right to expect and insist that he shall receive a 5–8–7 grade and not a 4–8–10 grade, even though the latter may have an equal or higher commercial value. As far as plant growth is concerned, an overrun of 30 or 40 pounds of potash in a ton of fertilizer does not compensate for a shortage of 15 or 20 pounds of nitrogen.

Deficiencies are emphasized by boldface type.

Mixtures Substantially Complying with the Guarantee. In addition to the analysis of those fertilizers which meet their guarantees in every respect, this table includes also those mixtures which have one or more elements below the guaranteed percentage but have a shortage of less than $1 per ton.

Inferior Nitrogen. The presence of inferior forms of organic nitrogen is indicated by footnotes.

Potash Forms. Tests for chlorine are made only on tobacco mixtures and on those fertilizers which carry a guarantee of potash in forms other than muriate. When the amount of chlorine present in any brand exceeds the tolerance allowed for that brand, this fact is indicated by a footnote.

Mixtures Showing a Commercial Shortage of $1 or More Per Ton.

Name of Manufacturer and Brand	Where Sampled	Approximate Commercial Shortage Per Ton	Nitrogen Found					Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found	Magnesium Oxide	
			In Ammoniacal Forms	In Nitrate Forms	Water Soluble Organic	Water Insoluble Organic	Total			Found	Guaranteed
Acme Guano Co.											
Acme 4–8–4 (*a*)	New Bedford	$1.94	2.30	.34	.78	.37	**3.79**	**7.28**	4.19	–	–
American Agricultural Chemical Co.											
AA Fertilizer 0–20–20	New Bedford	1.91	–	–	–	–	–	21.76	**17.66**	–	–
AA 8–16–16 Fertilizer (*b*)	Fall River	2.13	7.09	.65	.10	.10	**7.94**	17.06	**13.80**	–	–
AA 8–24–8 Fertilizer	Rochester	1.47	6.67	.94	.44	.36	8.41	**22.65**	**7.91**	–	–
AA Corn Favorite 3–10–4 (*b*)	South Westport	3.79	.38	2.65	.06	.10	3.19	15.86	**.74**	–	–
Agrico for Lawns, Trees & Shrubs 7–7–5 (*b*)	Natick	4.46	4.13	.56	.34	1.17	**6.20**	8.35	5.14	–	–
Armour Fertilizer Works											
Armour's Big Crop Fertilizer 8–16–20 (*b*)	Chelsea	1.25	7.12	.79	.14	.20	8.25	17.38	**18.59**	–	–
Berkshire Chemical Co.											
Berkshire Tobacco Starter 5–5–15 (*b*)	Hatfield	1.34	.02	2.82	.21	1.98	5.03	5.31	**13.78***c*	–	–
Berkshire Fertilizer 5–10–5 (*a*)	Dartmouth	1.85	4.33	.05	.41	.36	5.15	**8.73**	5.27	–	–
Collins Seed Service Co.											
General Purpose Manure 4–8–4	Boston	3.59	1.91	1.01	.43	1.31	4.66	8.20	**2.02**	–	–
General Purpose Manure 4–8–4	Boston	4.10	1.82	1.09	.28	1.24	4.43	8.59	**1.76**	–	–

Davison Chemical Corporation											
Davco Granulated Fertilizer 5–8–7 .	Three Rivers	2.03	5.00	–	.15	.08	5.23	8.85	**5.19**	–	–
Eastern States Farmers' Exchange											
Eastern States 4–16–20 (*a*) . .	Taunton	1.77	3.01	1.04	.09	.11	4.25	**14.37**	24.21	2.11	1.00
Eastern States 8–16–16 LCS—Low Chlorine Special	North Cambridge	3.11	6.26	.60	.26	.25	**7.37**	**14.47**	18.92*c*	2.80	2.00
Eastern States 10–10–10 (*b*) . .	Shelburne Falls	1.69	6.53	2.76	.24	.24	**9.77**	13.41	**8.68**	1.92	1.00
Garden Hose Spray Co., Inc.											
Arnold Vita-Vim Plus Vitamin B_1 Complete Plant Food Tablets 17–8.5–8	Quincy	–*d*	7.78	9.42	.04	.03	17.27	**6.63**	8.86	–	–
Arnold Vita-Vim Plus Vitamin B_1 Complete Plant Food Tablets 17–8.5–8	Cambridge	–*d*	7.79	9.18	.01	.05	17.03	**6.78**	8.85	–	–
International Agricultural Corporation											
International 6–3–6 (*a*) . . .	North Amherst	$2.25	.35	1.32	1.30	2.61	**5.58**	3.27	6.13*c*	5.98	2.00
International 8–16–16 (*a*) . . .	Lowell	2.34	4.78	.83	1.99	.11	**7.71**	**15.50**	**14.29**	2.76	2.00
McClain Brothers Co.											
Veg-E-Tonic 21–13–10 (*b*) . . .	West Newton	–*d*	11.28	.44	9.15	.14	21.01	**11.53**	11.12	–	–
Old Deerfield Fertilizer Co., Inc.											
Old Deerfield 8–16–14 Concentrated Fertilizer (*b*)	South Deerfield	1.31	3.01	1.05	3.25	.86	8.17	**14.88**	18.72	–	–
Ra-Pid-Gro Corporation											
Ra-Pid-Gro 23–27–17	West Newton	–*d*	4.02	4.55	12.89	.01	**21.47**	**22.89**	17.06	–	–
Ra-Pid-Gro 23–27–17	New Bedford	–*d*	4.70	2.94	13.41	.01	**21.06**	29.38	**13.28**	–	–

a Two other samples complied with the guarantee.
b One other sample complied with the guarantee.
c In forms other than muriate.

d Since this material is sold in small packages a calculation of the shortage per ton is not feasible. Deficiency found is great enough for inclusion of this material with other seriously deficient mixtures.

Mixtures Showing a Commercial Shortage of $1 or More Per Ton—Concluded

Name of Manufacturer and Brand	Where Sampled	Approximate Commercial Shortage Per Ton	Nitrogen Found					Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found	Magnesium Oxide	
			In Ammoniacal Forms	In Nitrate Forms	Water Soluble Organic	Water Insoluble Organic	Total			Found	Guaranteed
Rogers & Hubbard Co.											
Hubbard's Top Dressing 8–5–8 (*b*)	South Chelmsford	$3.40	.15	6.48	.17	.46	**7.26**	7.10	9.98	–	–
Red H Brand 5–8–10 (*b*)	Plymouth	1.65	3.04	.51	1.43	.57	5.55	9.51	**8.70**	–	–
Red H Brand 8–16–14 (*e*)	Bradstreet	2.11	5.90	.20	1.77	.21	8.08	**15.86**	**11.88**	–	–
Standard Wholesale Phosphate & Acid Works, Inc.											
Standard 5–8–7	Hadley	3.00	3.52	.08	.42	.51	**4.53**	10.20	**5.82**	–	–
Standard 5–8–7 (*b*)	Hadley	1.87	3.45	.06	.63	.47	**4.61**	9.55	**6.56**	–	–
Standard 10–5–5	Hadley	1.57	8.73	–	.42	.33	**9.48**	5.98	5.46	–	–

b One other sample complied with the guarantee.
e Three other samples complied with the guarantee.

Mixtures Substantially Complying with Guarantees.

Name of Manufacturer and Brand	Nitrogen Found					Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found
	In Ammoniacal Forms	In Nitrate Forms	Water Soluble Organic	Water Insoluble Organic	Total		
Acme Guano Co.							
Acme 3–12–6	1.19	.02	1.33	.46	3.00	12.67	6.43
Acme 4–8–4	2.37	–	.89	.84	4.10	8.88	4.28
Acme 4–8–4 (*a*)	2.37	.09	.88	.85	4.19	8.55	4.07
Acme 4–8–7	3.28	–	.43	.31	4.02	8.06	7.13
Acme 5–5–15	2.25	.18	.32	2.45	5.20	7.44	16.42*b*
Acme 5–8–7	2.94	.95	.61	.60	5.10	8.65	6.67
Acme 5–8–7	2.83	1.06	1.16	.57	5.62	8.73	7.44
Acme 6–3–6	3.52	–	.61	2.17	6.30	4.67	7.99*b*
Acme 7–3–7	4.33	.09	.33	2.33	7.08	4.29	9.13*b*
Acme 7–3–7	4.54	–	.30	2.27	7.11	4.21	9.78*b*
Acme 7–6–6	3.56	1.78	.70	.85	6.89	6.70	6.84
Acme 7–7–7	3.38	2.54	.53	.95	7.40	8.14	7.33
Agricultural Laboratories, Inc.							
Stimuplant 11–12–15	3.34	9.87	.05	.02	13.28	12.87	16.79
Stimuplant 11–12–15	3.58	9.84	.09	.01	13.52	12.68	29.06
American Agricultural Chemical Co.							
AA 8–16–16 Fertilizer (*a*)	6.88	.91	.32	.02	8.13	17.18	15.43

a One other sample was deficient: see analysis in table of "Mixtures showing a commercial shortage of $1 or more per ton."
b In forms other than muriate.

Mixtures Substantially Complying with Guarantees — Continued.

Name of Manufacturer and Brand	Nitrogen Found					Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found
	In Ammoniacal Forms	In Nitrate Forms	Water Soluble Organic	Water Insoluble Organic	Total		
American Agricultural Chemical Co.—Continued							
AA Corn Favorite 3–10–4 (*a*)	1.91	.77	.11	.24	3.03	10.88	4.07
AA Cranberry Fertilizer 5–6–4	3.41	.85	.15	.37	4.78	10.71	4.79
AA Cranberry Fertilizer 5–6–4	3.35	.78	.23	.35	4.71	10.71	4.83
AA Cranberry Fertilizer 5–6–4	3.32	.77	.35	.40	4.84	7.04	3.75
AA Cranberry Fertilizer 5–6–4	3.04	.93	.37	.47	4.81	6.82	4.48
AA Double Strength Fertilizer 8–16–14	6.97	.72	.28	.09	8.06	16.87	14.30
AA Double Strength Fertilizer 8–16–14	6.82	.95	.18	.03	7.98	17.21	15.20
AA Market Garden Fertilizer 4–8–4	2.45	.78	.20	.37	3.80	8.25	4.09
AA Market Garden Fertilizer 4–8–4	2.44	.83	.22	.40	3.89	8.79	3.94
AA Peerless Fertilizer 4–8–7	2.76	.38	.51	.48	4.13	8.58	6.78
AA Potato Grower 5–8–10	3.76	.74	.15	.39	5.04	8.38	10.00
AA Potato Grower 5–8–10	3.85	.87	.17	.35	5.24	8.41	10.17
AA Potato & Root Crop Fertilizer 4–8–10	2.58	.15	.81	.41	3.95	8.31	10.41
AA Potato & Root Crop Fertilizer 4–8–10	2.59	.79	.17	.31	3.86	8.37	10.31
AA Potato & Vegetable Fertilizer 5–8–7	3.79	.91	.09	.36	5.15	7.85	7.56
AA Potato & Vegetable Fertilizer 5–8–7	3.94	.85	.16	.35	5.30	8.39	7.00
AA Tobacco Starter 5–5–15	1.21	1.55	.32	1.83	4.91	6.44	15.28*b*
AA Tobacco Starter 5–5–15	.13	2.68	.34	1.86	5.01	5.39	15.82*b*
AA Top Dresser 7–6–6	5.87	.42	.37	.43	7.09	6.83	6.12
AA Top Dresser 7–6–6	5.98	.55	.08	.37	6.98	6.85	6.14
AA Top Dresser 7–7–7	5.84	.51	.12	.41	6.88	7.53	6.72
AA Top Dresser 7–7–7	6.12	.62	.10	.36	7.20	8.08	6.71

Agrico for Aroostook with 10% Potash 5–8–10	3.70	.79	.14	.38	5.01	7.74	10.08
Agrico for Aroostook with 10% Potash 5–8–10	3.77	.77	.18	.35	5.07	8.07	10.35
Agrico for Corn 3–10–6	2.06	.75	.10	.32	3.23	10.10	6.63
Agrico for Corn 3–10–6	1.89	.78	.18	.32	3.17	10.45	6.01
Agrico for Corn 4–12–6	2.87	.74	.21	.35	4.17	12.01	6.71
Agrico for Corn 4–12–6	2.86	.83	.25	.39	4.33	12.69	6.07
Agrico Country Club Fertilizer 6–8–2	3.43	.20	.66	2.02	6.31	8.94	2.21
Agrico Country Club Fertilizer 6–8–2	3.46	.26	.47	1.88	6.07	9.27	2.07
Agrico Country Club Fertilizer 8–6–2	4.04	.53	.80	2.76	8.13	6.36	2.09
Agrico Country Club Fertilizer 8–6–2	3.31	.97	.66	3.16	8.10	6.60	2.40
Agrico Country Club Fertilizer 8–6–4	6.10	.73	.18	.81	7.84	6.62	4.42
Agrico Country Club Fertilizer 8–6–4	6.45	.01	.83	.62	7.91	7.43	3.11
Agrico for Fruit 8–8–4	5.76	1.27	.59	.11	7.73	7.93	4.00
Agrico for Fruit 8–8–4	5.90	1.18	.59	.13	7.80	7.92	3.93
Agrico for Gardens 4–10–4	3.25	–	.21	1.20	4.66	10.22	4.32
Agrico for Gardens 4–10–4	3.06	.12	.21	.99	4.38	10.85	4.01
Agrico for Lawn, Trees & Shrubs 7–7–5 (a)	5.00	.66	.51	1.18	7.35	7.49	5.50
Agrico for New England 4–8–10	2.58	.75	.25	.44	4.02	8.53	9.92
Agrico for New England 4–8–10	2.62	.88	.16	.39	4.05	8.51	9.83
Agrico for Onions 5–10–5	3.27	.97	.51	.43	5.18	10.58	5.31
Agrico for Potatoes & Vegetables 5–8–7	3.76	.89	.08	.41	5.14	8.55	7.19
Agrico for Potatoes & Vegetables 5–8–7	3.62	.87	.16	.36	5.01	8.03	7.25
Agrico for Potatoes, Double Strength 8–16–14	6.81	.85	.32	.05	8.03	15.66	13.61
Agrico for Potatoes, Double Strength 8–16–14	6.85	.57	.54	.10	8.06	16.97	14.57
Agrico for Potatoes, Double Strength 8–16–14	6.77	.82	.41	.06	8.06	16.46	15.44
Agrico for Potatoes, Double Strength 8–16–20	6.91	.97	–	.22	8.10	16.28	20.93
Agrico for Potatoes, Double Strength 8–16–20	6.73	1.11	.13	.31	8.28	17.27	20.19
Agrico for Seeding Down 4–16–20	3.08	.99	.10	.13	4.30	16.74	19.88
Agrico for Seeding Down 4–16–20	3.27	1.16	.03	.07	4.53	17.15	19.19

a One other sample was deficient: see analysis in table of "Mixtures showing a commercial shortage of $1 or more per ton."
b In forms other than muriate.

Mixtures Substantially Complying with Guarantees — Continued.

Name of Manufacturer and Brand	Nitrogen Found					Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found
	In Ammoniacal Forms	In Nitrate Forms	Water Soluble Organic	Water Insoluble Organic	Total		
American Agricultural Chemical Co.—Concluded							
Agrico for Tobacco 6–3–6	.09	.80	.88	4.13	5.90	3.74	6.10*b*
Agrico for Tobacco 6–3–6	.04	.80	.94	4.23	6.01	3.67	6.03*b*
Agrico for Top Dressing 7–7–7	6.15	.71	.09	.31	7.26	7.85	7.04
Agrico for Top Dressing 7–7–7	6.26	.44	.21	.39	7.30	7.79	6.09
Bowker All Round Fertilizer 3–10–4	1.99	.60	.28	.29	3.16	10.30	3.62
Bowker All Round Fertilizer 3–10–4	1.73	.82	.20	.27	3.02	10.42	3.46
Bowker Stockbridge Early Crop Manure 5–8–7	3.83	.54	.46	.46	5.29	8.55	7.05
Bowker Stockbridge Early Crop Manure 5–8–7	3.98	.73	.22	.40	5.33	8.78	6.72
Bradley Blood Bone & Potash Brand 5–8–7	3.83	.68	.22	.38	5.11	8.34	7.21
Bradley Blood Bone & Potash Brand 5–8–7	3.49	.79	.37	.38	5.03	8.73	6.82
Bradley XL Fertilizer 3–10–4	1.82	.78	.14	.26	3.00	10.91	3.56
Bradley XL Fertilizer 3–10–4	1.64	.75	.22	.27	2.88	10.60	3.18
Co-op 5–8–7 Fertilizer	3.95	.65	.17	.40	5.17	8.16	7.27
Co-op 5–8–7 Fertilizer	4.05	.66	.18	.36	5.25	8.16	7.04
National Pine Tree Brand 4–8–4	2.51	.79	.25	.39	3.94	8.54	4.59
Apothecaries Hall Co.							
Liberty Green Gro 6–5–3	1.66	.69	1.12	3.33	6.80	6.90	5.13
Liberty High Grade Market Gardeners 5–8–7	3.43	–	.82	.92	5.17	8.42	7.89
Liberty High Grade Market Gardeners 5–8–7	3.53	.77	.18	.86	5.34	8.47	7.15
Liberty High Grade Vegetable Fertilizer 5–10–10	3.21	1.30	.29	.70	5.50	10.83	10.35
Liberty High Grade Vegetable Fertilizer 5–10–10	3.10	1.35	.20	.70	5.35	11.06	10.81

Liberty Market Gardeners Special 4-8-4	3.13	.45	.36	.46	4.40	8.21	4.11
Liberty Market Gardeners Special 4-8-4	2.99	.48	.45	.44	4.36	8.66	4.05
Liberty Potato & General Crops 4-8-10	2.59	.86	.17	.73	4.35	8.64	10.70
Liberty Potato & General Crops 4-8-10	2.65	.95	.16	.71	4.47	8.85	11.88
Liberty Potato & Market Gardeners—Potash as Muriate 4-8-7	2.58	.92	.07	.60	4.17	8.58	7.00
Liberty Special Fertilizer for Fruit & Grass 7-7-7	5.54	.75	.30	.71	7.30	7.55	7.52
Liberty Special Fertilizer for Fruit & Grass 7-7-7	5.82	.68	.17	.61	7.28	8.14	7.46
Liberty Tobacco Mixture—With Cotton Hull Ashes 6-3-6	.13	.72	2.91	2.90	6.66	4.90	6.59*b*
Liberty Tobacco Mixture—With Cotton Hull Ashes 6-3-6	.14	.59	3.16	2.67	6.56	4.99	6.30*b*
Liberty Top Dresser for Grass & Grain 8-8-8	6.47	.58	.35	.90	8.30	8.63	8.39
Liberty Top Dresser for Grass & Grain 8-8-8	6.43	.65	.26	.80	8.14	8.93	8.29
Liberty Tree & Shrub Food 10-8-8	8.13	.63	.24	.96	9.96	9.18	9.84
Armour Fertilizer Works							
Armour's Big Crop Fertilizer 3-12-6	1.94	.40	.22	.55	3.11	12.56	6.09
Armour's Big Crop Fertilizer 3-12-6	1.91	.57	.17	.56	3.21	12.71	6.16
Armour's Big Crop Fertilizer 4-8-4	3.00	.43	.17	.50	4.10	8.51	4.13
Armour's Big Crop Fertilizer 4-8-4	2.76	.50	.21	.54	4.01	8.81	4.05
Armour's Big Crop Fertilizer 4-8-7	2.54	.57	.42	.78	4.31	8.32	6.90
Armour's Big Crop Fertilizer 4-8-7	2.31	.47	.44	.62	3.84	8.38	7.00
Armour's Big Crop Fertilizer 4-8-10	2.52	.47	.40	.65	4.04	8.18	10.23
Armour's Big Crop Fertilizer 4-8-10	2.45	.66	.32	.58	4.01	8.69	9.94
Armour's Big Crop Fertilizer 4-16-4	3.39	.41	.07	.22	4.09	17.04	4.07
Armour's Big Crop Tobacco Starter 5-5-15	.30	1.91	1.64	1.01	4.86	5.53	16.52*b*
Armour's Big Crop Tobacco Starter 5-5-15	.28	2.11	1.58	1.15	5.12	6.39	14.94*b*
Armour's Big Crop Fertilizer 5-8-7	3.42	.67	.39	.62	5.10	8.57	6.80
Armour's Big Crop Fertilizer 5-8-7	3.48	.54	.35	.72	5.09	8.61	6.49
Armour's Big Crop Fertilizer 5-8-10	3.66	.61	.35	.56	5.18	8.37	10.20
Armour's Big Crop Fertilizer 5-8-10	3.43	.75	.26	.59	5.03	8.83	9.09

b In forms other than muriate.

Mixtures Substantially Complying with Guarantees — Continued.

Name of Manufacturer and Brand	Nitrogen Found					Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found
	In Ammoniacal Forms	In Nitrate Forms	Water Soluble Organic	Water Insoluble Organic	Total		
Armour Fertilizer Works—Concluded							
Armour's Big Crop Fertilizer 5–10–5	3.73	.66	.19	.53	5.11	10.12	5.00
Armour's Big Crop Fertilizer 5–10–5	3.69	.59	.16	.55	4.99	11.02	4.89
Armour's Big Crop Fertilizer 5–10–10	3.46	.76	.35	.67	5.24	10.61	10.17
Armour's Big Crop Fertilizer 5–10–10	3.38	.57	.34	.76	5.05	10.15	9.75
Armour's Big Crop Tobacco Special 6–3–6	.10	1.16	1.96	3.22	6.44	3.42	7.09*b*
Armour's Big Crop Tobacco Special 6–3–6	.28	1.33	1.17	3.26	6.04	3.97	6.80*b*
Armour's Big Crop Fertilizer 7–7–7	5.63	.68	.14	.64	7.09	7.26	6.94
Armour's Big Crop Fertilizer 7–7–7	5.40	.72	.19	.69	7.00	7.54	6.67
Armour's Big Crop Fertilizer 8–16–20 (*a*)	6.78	.70	.28	.15	7.91	16.76	19.41
Armour's Fertilizer 2–10–2	1.39	.32	.14	.44	2.29	10.16	2.85
Armour's Fertilizer 8–16–16	6.67	.87	.18	.13	7.85	15.47	15.96
Armour's Fertilizer 8–16–16	6.84	.93	.14	.12	8.03	17.33	15.68
Armour's Fertilizer 8–16–16	6.74	.83	.19	.14	7.90	16.16	16.01
Armour's Fertilizer 8–16–16	6.78	.82	.35	.04	7.99	15.32	16.24
Armour's Garden & Lawn Fertilizer 4–8–8	2.57	.59	.28	.61	4.05	8.75	7.90
Armour's Special Putting Green Mixture 8–5–2	4.47	.86	.45	2.41	8.19	5.99	2.48
Armour's Special Putting Green Mixture 8–5–2	4.50	1.42	.32	2.33	8.57	6.53	2.15
Ernest J. Bantle							
Bantle's Special Tobacco Fertilizer 6–3–7	.04	1.59	1.52	2.85	6.00	4.07	7.34*b*
Bantle's Special Tobacco Fertilizer 6–3–7	.07	1.99	1.10	3.49	6.65	4.69	7.27*b*
F. A. Bartlett Tree Expert Co., Inc.							
Bartlett Green Tree Food 6–7–4	5.42	–	.10	.90	6.42	9.26	4.54
Bartlett Green Tree Food 6–7–4	5.34	–	.16	.94	6.44	8.64	5.45

Baugh & Sons Co.							
Baugh's Advanced Growers Special 5–8–7	3.85	.09	.83	.24	5.01	8.73	7.19
Baugh's Half Century Perfection Brand 4–8–7	2.58	.56	.60	.26	4.00	8.40	7.19
Baugh's Old Dependable Potato Grower 4–8–10	2.52	.29	.84	.18	3.83	8.61	10.14
Baugh's Peruvian Guano Substitute 4–8–5	2.68	.40	.71	.26	4.05	8.98	5.12
Baugh's Premium Plant Food & Soil Builder 5–10–5	3.29	.35	1.07	.39	5.10	10.82	5.14
Belmont Gardens							
Gardenia Fertilizer (Belgard) 6–15–4	5.05	.03	.12	.93	6.13	17.50	3.85
Berkshire Chemical Co.							
Berkshire Fertilizer 4–8–4	2.66	1.02	.19	.17	4.04	8.14	5.00
Berkshire Fertilizer 4–8–4	2.58	.17	1.03	.23	4.01	8.61	5.39
Berkshire Fertilizer 4–8–7	2.84	.30	.99	.21	4.34	8.28	7.48
Berkshire Fertilizer 4–8–7	3.25	.11	.47	.29	4.12	7.91	7.00
Berkshire Fertilizer 4–8–10	2.79	.06	.95	.21	4.01	8.63	9.89
Berkshire Fertilizer 4–12–4	2.62	–	1.13	.28	4.03	12.36	4.32
Berkshire Fertilizer 4–12–4	3.00	–	.80	.31	4.11	11.75	4.42
Berkshire Fertilizer Tobacco Starter 5–5–15 (*a*)	.09	2.94	.31	1.44	4.78	5.41	15.12*b*
Berkshire Fertilizer 5–8–7	3.81	–	1.04	.23	5.08	8.41	6.84
Berkshire Fertilizer 5–8–7	4.12	.02	1.05	.26	5.45	8.03	7.25
Berkshire Fertilizer 5–8–7	3.66	–	1.03	.18	4.87	8.03	7.10
Berkshire Fertilizer 5–8–7	3.83	–	.96	.22	5.01	8.33	7.21
Berkshire Fertilizer 5–8–10	4.02	–	.85	.26	5.13	8.54	10.47
Berkshire Fertilizer 5–8–10	4.18	.03	.94	.29	5.44	8.90	9.18
Berkshire Fertilizer 5–10–5	3.84	.07	.96	.22	5.09	10.15	5.10
Berkshire Fertilizer 5–10–5 (*a*)	3.74	.02	1.05	.25	5.06	10.38	4.84
Berkshire Fertilizer 5–10–10	4.25	.02	.67	.19	5.13	9.75	10.81

a One other sample was deficient: see analysis in table of "Mixtures showing a commercial shortage of $1 or more per ton."
b In forms other than muriate.

Mixtures Substantially Complying with Guarantees — Continued.

Name of Manufacturer and Brand	Nitrogen Found					Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found
	In Ammoniacal Forms	In Nitrate Forms	Water Soluble Organic	Water Insoluble Organic	Total		
Berkshire Chemical Co.—Concluded							
Berkshire Fertilizer Tobacco 6–3–6	.20	.86	.91	3.84	5.81	3.36	6.98*b*
Berkshire Fertilizer Tobacco 6–3–6	.06	.67	1.27	3.94	5.94	3.65	6.12*b*
Berkshire Fertilizer Tobacco 6–3–6	.06	.80	1.53	3.65	6.04	3.61	5.65*b*
Berkshire Fertilizer Grass Special 6–6–5	4.98	–	.83	.20	6.01	6.34	5.21
Berkshire Fertilizer Grass Special 6–6–5	4.71	–	1.08	.25	6.04	6.80	4.50
Berkshire Fertilizer 7–7–7	5.87	–	.96	.19	7.02	7.86	7.31
Berkshire Fertilizer 7–7–7	5.59	.20	1.07	.20	7.06	7.67	6.90
Berkshire Golf Green 8–5–2	2.06	–	2.68	4.01	8.75	5.45	1.82
Joseph Breck & Sons Corporation							
Breck's "Home Garden" Fertilizer 5–10–10	1.07	1.72	.47	1.70	4.96	10.35	10.62
Breck's "Home Garden" Fertilizer 5–10–10	1.05	1.78	.61	1.61	5.05	10.44	10.09
Brexone Bulb Food 5–1–5	4.02	1.05	.26	.76*c*	6.09	2.56	5.00
Brexone Bulb Food 5–1–5	3.08	1.39	.22	.72*c*	5.41	3.51	5.91
Brexone Bulb Food 5–1–5	3.04	1.34	.21	.71*c*	5.30	2.92	5.83
Brexone Lawn and Plant Food 5–10–4	1.89	1.51	.54	1.20	5.14	10.45	4.15
Brexone Lawn and Plant Food 5–10–4	1.80	1.58	.44	1.09	4.91	10.53	3.96
Brexone Rose Food 4–12–4	1.53	1.31	.45	.97*c*	4.26	12.20	4.07
Collins Seed Service Co.							
Complete Grass Manure 6–8–2	2.08	1.67	.52	1.82	6.09	8.07	2.06
Complete Grass Manure 6–8–2	2.02	1.86	.43	1.78	6.09	8.20	2.13
Complete Grass Manure 6–8–2	1.95	1.67	.70	1.79	6.11	8.02	1.73

Casta-Poma Grass Manure 5–6–2	2.02	1.02	.39	1.77	5.20	6.00	1.86
Casta-Poma Grass Manure 5–6–2	1.82	1.01	.45	1.50	4.78	7.22	2.52
Ver-Best P. G. Manure 7–8–3	2.87	1.81	.53	2.21	7.42	8.77	3.01
Consolidated Rendering Co.							
Competitive 8–16–8	7.47	.96	.03	.11	8.57	17.08	8.01
Competitive 8–16–16	6.26	.96	.94	.12	8.28	16.67	16.94
Competitive 8–16–16	6.28	.98	.62	.12	8.00	17.22	15.30
Corenco 3–10–4 Animal Brand	1.68	.99	.34	.04	3.05	10.63	4.59
Corenco 3–10–4 Animal Brand	1.53	1.25	.27	.06	3.11	11.16	4.15
Corenco 4–8–4 Corn & Vegetable	2.44	1.01	.53	.06	4.04	7.93	4.69
Corenco 4–8–4 Corn & Vegetable	2.58	1.08	.43	.05	4.14	8.38	4.21
Corenco 4–8–7 Market Garden	2.45	1.05	.47	.06	4.03	8.24	7.02
Corenco 4–8–7 Market Garden	2.54	1.25	.43	.05	4.27	8.33	7.09
Corenco 4–8–10 Potato Grower	2.59	1.12	.47	.06	4.24	8.46	10.29
Corenco 4–8–10 Potato Grower	2.51	1.16	.48	.06	4.21	8.47	10.08
Corenco 4–12–4 Complete Manure	2.13	.93	.67	.28	4.01	12.35	4.92
Corenco 4–12–4 Complete Manure	2.43	1.06	.49	.11	4.09	12.95	4.01
Corenco 5–5–5 Lawn & Shrub	1.15	.94	.46	2.46	5.01	6.24	5.43
Corenco 5–5–5 Lawn & Shrub	1.67	1.10	.29	2.12	5.18	5.43	5.25
Corenco 5–5–15 Tobacco Starter	.04	1.72	1.54	1.99	5.29	5.95	15.63*b*
Corenco 5–8–7 General Crop Manure	3.50	.99	.56	.07	5.12	8.17	7.05
Corenco 5–8–7 General Crop Manure	3.35	1.11	.48	.09	5.03	8.60	7.02
Corenco 5–8–10 Peerless Potato	3.48	1.13	.43	05	5.09	7.75	11.36
Corenco 5–8–10 Peerless Potato	3.42	1.13	.58	.05	5.18	8.24	9.87
Corenco 5–10–5 Super Truck	3.28	1.36	.44	.07	5.15	11.01	5.02
Corenco 5–10–5 Super Truck	3.67	1.14	.44	.28	5.53	10.02	4.82
Corenco 5–10–10	3.04	1.29	.49	.06	4.88	10.14	10.87
Corenco 6–3–6 Special Tobacco Grower	.21	.98	1.85	3.13	6.17	4.22	6.92*b*
Corenco 6–3–6 Special Tobacco Grower	.23	.97	1.81	3.10	6.11	4.16	6.53*b*
Corenco 7–6–4	5.31	1.09	.60	.09	7.09	6.51	6.94

b In forms other than muriate.

c The water insoluble nitrogen was of inferior quality.

Mixtures Substantially Complying with Guarantees — Continued.

Name of Manufacturer and Brand	Nitrogen Found					Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found	Magnesium Oxide	
	In Ammoniacal Forms	In Nitrate Forms	Water Soluble Organic	Water Insoluble Organic	Total			Found	Guaranteed
Consolidated Rendering Co.—Concluded									
Corenco 7–7–7 Complete Fruit & Top Dressing	5.19	1.14	.54	.05	6.92	7.63	6.70	–	–
Corenco 7–7–7 Complete Fruit & Top Dressing	5.37	1.08	.55	.07	7.07	7.65	7.02	–	–
Corenco 7–7–7 Complete Fruit & Top Dressing	3.22	1.33	2.39	.06	7.00	7.61	6.79	–	–
Corenco 7–7–7 Complete Fruit & Top Dressing	3.50	.20	3.25	.08	7.03	7.24	7.02	–	–
Corenco 8–6–4 Top Dressing	6.14	.68	.85	.64	8.31	6.25	4.18	–	–
Corenco 8–16–14 Two-in-One	6.15	1.11	.93	.10	8.29	17.31	13.68	–	–
Corenco 8–16–14 Two-in-One	6.43	.66	.74	.17	8.00	16.78	14.73	–	–
5–8–4 Gracol Garden	1.61	1.19	.49	2.82	6.11	11.55	5.26	–	–
5–8–4 Gracol Garden	1.89	1.09	.39	2.69	6.06	12.19	5.40	–	–
New England 8–6–2 Putting Green Special	4.32	.04	1.83	1.93	8.12	7.15	2.58	–	–
New England 8–6–2 Putting Green Special	5.84	.50	.32	1.79	8.45	6.98	2.42	–	–
Davey Tree Expert Co.									
Davey Tree Food 12–4–4	9.94	1.24	.13	.99	12.30	4.58	3.81	–	–
Davison Chemical Corporation									
Davco Granulated Fertilizer 6–6–5	5.16	.34	.11	.10	5.71	6.05	4.77	–	–
Davco Granulated Fertilizer 6–6–5	5.90	–	.08	.07	6.05	6.44	5.08	–	–
Eastern States Farmers' Exchange									
Eastern States 0–20–20	–	–	–	–	–	20.65	19.60	–	–
Eastern States 0–20–20	–	–	–	–	–	19.07	23.47	–	–
Eastern States 4–16–20	3.14	1.11	.13	.14	4.52	17.69	19.34	1.96	1.00
Eastern States 4–16–20 (*a*)	2.96	1.13	.08	.13	4.30	16.66	21.22	2.22	1.00

Eastern States 5–5–15 Tobacco	.20	.19	2.84	2.37	5.60	6.42	17.62*b*	3.00	2.00
Eastern States 5–5–15 Tobacco	.23	.07	2.41	2.33	5.04	6.97	15.55*b*	3.06	2.00
Eastern States 5–10–5	3.85	1.02	.09	.17	5.13	10.84	5.23	3.08	2.00
Eastern States 5–10–5	3.78	1.08	.12	.22	5.20	10.83	5.93	3.10	2.00
Eastern States 5–10–10	4.40	.85	.04	.14	5.43	10.68	10.43	2.10	1.00
Eastern States 5–10–10	4.32	.89	.10	.14	5.45	11.06	10.27	2.06	1.00
Eastern States 5–15–5	3.56	.10	1.47	.22	5.35	15.03	5.47	1.86	1.00
Eastern States 5–15–5	3.60	.14	1.43	.20	5.37	14.86	6.42	1.75	1.00
Eastern States 7–7–7	5.44	1.46	.21	.23	7.34	8.02	7.48	3.14	2.00
Eastern States 7–7–7	5.20	1.57	.12	.22	7.11	8.33	7.09	3.00	2.00
Eastern States 7–14–21	5.94	.81	.24	.24	7.23	13.62	22.54	2.68	2.00
Eastern States 7–14–21	5.84	.97	.15	.37	7.33	13.10	22.77	2.76	2.00
Eastern States 8–4–8 Tobacco	.30	.42	4.52	3.35	8.59	4.92	9.44*b*	3.06	2.00
Eastern States 8–4–8 Tobacco	.24	.20	5.02	3.36	8.82	4.87	8.35*b*	3.86	2.00
Eastern States 8–8–8 C & B—Cranberry & Blueberry	.69	7.44	–	.12	8.25	9.87	9.26*b*	–	–
Eastern States 8–8–8 C & B—Cranberry & Blueberry	.52	8.21	.04	.11	8.88	10.03	8.22*b*	–	–
Eastern States 8–16–8	6.39	1.64	.25	.20	8.48	15.63	8.55	2.72	1.00
Eastern States 8–16–8	6.24	1.64	.09	.17	8.14	17.83	8.24	2.68	1.00
Eastern States 8–16–16	6.84	1.10	.27	.19	8.40	16.51	16.71	1.74	.50
Eastern States 8–16–16	7.08	1.07	.19	.18	8.52	16.57	16.48	1.76	.50
Eastern States 8–16–16 SM—Soluble Magnesium	7.09	.96	.13	.34	8.52	15.81	16.24	2.08	2.00
Eastern States 8–16–16 SM—Soluble Magnesium	6.77	1.16	.16	.36	8.45	16.01	17.21	2.14	2.00
Eastern States 8–24–8	5.33	.11	2.34	.22	8.00	26.07	8.62	2.18	1.00
Eastern States 8–24–8	5.68	.18	2.33	.21	8.40	26.59	8.20	2.17	1.00
Eastern States 10–5–5	7.78	1.98	.28	.24	10.28	6.34	5.27	3.36	1.00
Eastern States 10–5–5	7.57	1.95	.38	.23	10.13	6.38	5.62	3.46	1.00
Eastern States 10–10–10 (*a*)	7.67	2.13	.18	.20	10.18	10.79	10.72	2.02	1.00
Ellis Chemicals, Inc.									
Plantet 8–6–10	.94	7.64	.05	–	8.63	5.56	16.76	–	–

a One other sample was deficient: see analysis in table of "Mixtures showing a commercial shortage of $1 or more per ton."
b In forms other than muriate.

Mixtures Substantially Complying with Guarantees — Continued.

Name of Manufacturer and Brand	Nitrogen Found					Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found	Magnesium Oxide	
	In Ammoniacal Forms	In Nitrate Forms	Water Soluble Organic	Water Insoluble Organic	Total			Found	Guaranteed
Thomas W. Emerson Co.									
Emseco Brand 4-8-4	2.65	.21	.97	.34	4.17	8.22	4.44	–	–
Emseco Brand 4-8-4	3.22	.05	.84	.36	4.47	8.78	4.69	–	–
Emseco Brand 4-8-10	2.96	.04	1.05	.36	4.41	8.46	10.21	–	–
Emseco Brand 4-8-10	3.22	.05	.67	.30	4.24	8.82	10.52	–	–
Emseco Brand 5-8-7	4.16	.16	1.08	.37	5.77	8.09	8.34	–	–
Emseco Brand 5-8-7	4.28	.05	1.17	.28	5.78	8.67	8.04	–	–
Emseco Brand 6-3-2	4.54	.19	1.42	.48	6.63	3.53	3.31	–	–
Emseco Brand 6-3-2	4.53	.14	1.14	.49	6.30	3.44	3.14	–	–
Emseco Brand All Use Fertilizer 7-7-7	6.74	.08	.51	.35	7.68	7.23	7.34	–	–
Emseco Brand All Use Fertilizer 7-7-7	4.02	1.57	1.27	.29	7.15	7.91	7.34	–	–
English Formula Lawn & Garden Dressing 5-7-3	2.52	.01	.33	1.99	4.85	9.06	3.72	–	–
English Formula Lawn & Garden Dressing 5-7-3	2.57	.11	.34	1.92	4.94	7.86	3.91	–	–
Excell Laboratories									
New Plant Life 2-1-2	1.04	1.48	.01	–	2.53	1.36	2.17	–	–
H. L. Frost & Higgins Co.									
Frost's Lawn & Shrubbery Special 8-6-3	2.16	.10	2.18	3.70	8.14	8.06	3.35	–	–
Frost's Shade Tree Special 8-6-6	2.06	–	2.28	3.83	8.17	7.99	6.22	–	–
Goulard & Olena, Inc.									
G & O Lawn-Garden & Flower Fertilizer 5-8-5	3.69	.30	.28	.69	4.96	7.85	5.50	–	–
Sears Lawn & Garden Grower 5-8-7	3.84	.58	.10	.08	4.60	8.09	7.10	–	–

Greenlands Services, Inc.									
Perennial Fertilizer 4–6–8	2.06	.80	.19	1.87	4.92	8.53	8.20	–	–
Rhododendrons & Evergreens 4–6–4	1.63	.07	.29	3.35	5.34	8.06	5.41	–	–
Tuber & Bulb Fertilizer 4–8–10	3.24	.18	.20	1.18	4.80	9.16	10.31	–	–
Thomas J. Grey Co.									
Grey's 9–6–6 Plant Food	6.88	.69	.91	.45	8.93	6.80	6.20	–	–
Hartney-Amalia, Inc.									
Vitafood 7–7–6	2.54	1.26	1.60	1.63	7.03	7.76	5.68	–	–
Henderson & Herndon Tree Co., Inc.									
H. & H. Plant Food 5–5–10	1.54	.01	2.23	2.38	6.16	5.88	12.46	–	–
Hixon Tree Co.									
Hixon's Plant Foods—Tree Vigor 7–6–6	3.06	1.65	.82	1.56	7.09	6.41	6.09	–	–
Hixon's Plant Foods—Tree Vigor 7–6–6	3.04	1.61	.82	1.65	7.12	6.29	6.20	–	–
A. H. Hoffman, Inc.									
Hoffman's Plant Food 5–8–6	2.43	1.55	.37	.66	5.01	10.53	6.01	–	–
Hoffman's Plant Food 5–8–6	2.13	1.56	.26	1.06	5.01	9.25	6.13	–	–
Hydroponic Chemical Co., Inc.									
Hyponex 7–6–19	1.36	5.87	.09	.04	7.36	6.71	20.24	–	–
Hy-Trous Corporation									
Hy-Trous 4–8–4	–	4.45	–	–	4.45	9.07	3.67	–	–
International Agricultural Corporation									
International 3–10–4	1.84	.36	.80	.14	3.14	10.99	4.13	–	–
International 3–10–4	1.81	.57	.50	.14	3.02	10.88	4.15	–	–
International 4–8–4	2.50	.81	.85	.20	4.36	8.51	3.91	–	–
International 4–8–4	2.20	.94	.70	.17	4.01	8.15	4.28	–	–
International 4–8–4	2.44	.69	.67	.16	3.96	8.52	3.70	–	–

Mixtures Substantially Complying with Guarantees — Continued.

Name of Manufacturer and Brand	Nitrogen Found					Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found	Magnesium Oxide	
	In Ammoniacal Forms	In Nitrate Forms	Water Soluble Organic	Water Insoluble Organic	Total			Found	Guaranteed
International Agricultural Corporation—Continued									
International 4-8-7	2.58	.64	.80	.15	4.17	8.59	7.40	–	–
International 4-8-7	2.76	.70	.36	.21	4.03	8.64	7.02	–	–
International 4-8-10	2.24	.65	1.08	.16	4.13	8.66	10.00	–	–
International 4-8-10	2.40	.74	.71	.16	4.01	9.01	9.37	–	–
International 4-12-10 Fertilizer	2.10	.71	.67	.55	4.03	13.05	10.29	–	–
International 4-12-10 Fertilizer	.45	1.43	1.55	.60	4.03	12.91	10.02	–	–
International 5-8-7	3.50	.55	.71	.20	4.96	8.39	6.82	–	–
International 5-8-7	3.46	.90	.20	.57	5.13	8.80	7.27	–	–
International 5-8-7	3.49	.71	.56	.25	5.01	9.01	7.03	–	–
International 5-8-7	3.63	.68	.72	.18	5.21	9.30	6.88	–	–
International 5-8-10	3.67	.72	.80	.11	5.30	8.64	9.91	–	–
International 5-8-10	3.59	.72	.78	.09	5.18	9.35	10.00	–	–
International 5-12-6	3.34	.75	.81	.21	5.11	12.46	6.14	–	–
International 5-12-6	3.35	.86	.57	.23	5.01	12.80	5.54	–	–
International 6-3-6	.51	1.55	1.21	2.77	6.04	3.52	6.01*b*	5.18	2.00
International 6-3-6 (*a*)	.38	1.38	1.30	2.80	5.86	3.36	6.53*b*	6.32	2.00
International 6-12-12	2.03	2.02	.97	1.11	6.13	12.39	12.09	3.12	2.00
International 6-12-12	2.03	1.90	1.06	.99	5.98	12.63	11.69	3.06	2.00
International 7-6-6	5.34	.93	.81	.30	7.38	6.39	6.24	–	–
International 7-6-6	5.17	.84	.50	.29	6.80	6.41	6.24	–	–
International 8-6-2	3.34	1.68	.71	2.28	8.01	6.31	2.27	–	–
International 8-6-2	3.38	1.71	.50	2.22	7.81	6.46	2.21	–	–

International 8–16–14	6.49	.99	.31	.08	7.87	17.38	14.03	2.42	2.00
International 8–16–14	7.01	.91	.05	.08	8.05	16.87	13.78	2.86	2.00
International 8–16–16	5.41	.63	1.92	.10	8.06	17.04	14.89	2.38	2.00
International 8–16–16 (*a*)	5.70	.87	1.58	.08	8.23	17.52	16.67	3.00	2.00
International Caribee 5–10–10 Market Garden	1.15	1.59	.65	1.88	5.27	10.85	9.81	3.80	2.00
International Caribee 5–10–10 Market Garden	1.07	1.65	.65	1.69	5.06	10.70	10.56	3.96	2.00
International Caribee 7–5–3 Green & Fairway	1.30	2.55	.97	2.31	7.13	5.95	3.14	–	–
International Caribee 7–5–3 Green & Fairway	1.16	2.46	.74	2.44	6.80	5.50	3.02	–	–
Kem Laboratories									
Kem Liquid Plant Food (.08–.16–.10)	–	.09	–	–	.09	.18	.16	–	–
John D. Lyon, Inc.									
Old New England Lawn & Garden Dressing 5–7–3	1.11	.09	2.58	3.19	6.97	7.78	4.10	–	–
McClain Brothers Co.									
Veg-E-Tonic 21–13–10 (*a*)	11.87	.13	8.97	.08	21.05	13.39	10.15	–	
Mechling Bros. Chemicals, Division of General Chemical Co.									
Veget-Aid 5–10–4	4.15	.80	.53	.33	5.81	11.64	5.50	–	
Miller Chemical & Fertilizer Corporation									
Rich Yield 4–8–4	2.23	.02	1.57	.19	4.01	8.39	4.50	–	–
Rich Yield 4–8–4	2.26	.06	1.53	.16	4.01	8.63	4.11	–	–
Rich Yield 5–8–7	2.73	.14	1.81	.20	4.88	8.50	7.06	–	–
Rich Yield 5–8–7	2.83	.06	1.86	.19	4.94	8.86	6.81	–	–
Rich Yield 6–8–2	4.06	.22	.17	1.62	6.07	8.89	2.02	–	–
Rich Yield 7–7–7	4.19	.79	1.81	.19	6.98	7.94	6.76	–	–
New England Toro Co.									
Netco Fertilizer 5–8–7	2.45	.82	.31	1.68	5.26	8.18	8.11	–	–

a One other sample was deficient: see analysis in table of "Mixtures showing a commercial shortage of $1 or more per ton."
b In forms other than muriate.

Mixtures Substantially Complying with Guarantees—Continued.

Name of Manufacturer and Brand	Nitrogen Found					Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found	Magnesium Oxide	
	In Ammoniacal Forms	In Nitrate Forms	Water Soluble Organic	Water Insoluble Organic	Total			Found	Guaranteed
New England Toro Co.—Concluded									
Netco Fertilizer 7–8–4	3.38	1.40	.42	2.00	7.20	8.08	5.16	–	–
Netco Fertilizer 7–8–4	2.96	1.52	.34	2.34	7.16	8.78	4.34	–	–
Netco Greens Formula 8–6–2	5.42	–	.67	2.05	8.14	6.66	2.48	–	–
Netco Greens Formula 8–6–2	5.47	.17	.54	1.91	8.09	7.16	2.52	–	–
New England Tree Expert Co., Inc.									
New-Life Concentrated Plant Food 10–8–6	7.99	.98	.79	.12	9.88	8.58	6.47	–	–
Old Deerfield Fertilizer Co., Inc.									
Old Deerfield 3–12–6 Corn & Seeding	1.68	–	1.35	.55	3.58	12.41	6.32	–	–
Old Deerfield 3–12–6 Corn & Seeding	1.67	.03	1.23	.50	3.43	12.83	6.22	–	–
Old Deerfield 4–8–7 Potato & Market Garden	1.33	.71	1.31	.92	4.27	9.01	7.37	–	–
Old Deerfield 4–8–7 Potato & Market Garden	1.25	.88	1.19	.90	4.22	9.33	7.29	–	–
Old Deerfield 4–8–7 Potato, Potash other than Muriate	1.33	.71	1.40	.89	4.33	9.25	7.25*b*	–	–
Old Deerfield 4–8–10 High Potash	1.60	.72	1.44	.70	4.46	8.98	10.75	–	–
Old Deerfield 4–8–10 High Potash	1.59	.75	1.30	.69	4.33	9.51	10.56	–	–
Old Deerfield 5–3–5 Complete Tobacco	.44	.74	.75	3.86	5.79	3.35	6.11*b*	–	–
Old Deerfield 5–5–5 Lawnshrub	1.87	.67	1.79	2.44	6.77	6.32	5.91	–	–
Old Deerfield 5–5–5 Lawnshrub	1.71	.79	1.53	2.32	6.35	5.80	5.35	–	–
Old Deerfield 5–5–15 Tobacco Starter Bone & Potash	.86	.50	2.63	1.58	5.57	6.69	17.52*b*	–	–
Old Deerfield 5–5–15 Tobacco Starter Bone & Potash	.79	.84	2.48	1.37	5.48	6.96	16.77*b*	–	–
Old Deerfield 5–8–7 Onion & Truck	1.61	.81	2.22	.75	5.39	9.96	7.42	–	–
Old Deerfield 5–8–7 Onion & Truck	1.59	.79	2.08	.78	5.24	9.58	7.61	–	–

Old Deerfield 5–8–7 Set Onion & Potato, Potash other than Muriate, with 2% MgO	1.43	1.23	1.78	.88	5.32	9.21	7.48*b*	2.70	2.00
Old Deerfield 5–8–7 Set Onion & Potato, Potash other than Muriate, with 2% MgO	1.60	.84	1.95	.64	5.03	9.95	7.83*b*	4.24	2.00
Old Deerfield 5–10–5 Trucker's Special	1.57	.86	2.09	.77	5.29	11.08	5.70	–	–
Old Deerfield 5–10–10 Potato	1.67	.83	2.22	.85	5.57	10.93	10.70	–	–
Old Deerfield 5–10–10 Potato	1.54	.81	1.91	.80	5.06	11.35	10.31	–	–
Old Deerfield 6–3–6 Complete Tobacco	.39	.37	1.85	3.85	6.46	4.74	7.10*b*	–	–
Old Deerfield 6–3–7 High Grade Tobacco	.40	.77	1.52	3.83	6.52	5.00	7.60*b*	–	–
Old Deerfield 6–3–7 High Grade Tobacco	.35	.77	1.52	3.92	6.56	3.39	7.48*b*	–	–
Old Deerfield 7–7–7 Grass Top Dressing	3.67	1.45	1.42	.65	7.19	7.82	7.38	–	–
Old Deerfield 7–7–7 Grass Top Dressing	.98	1.77	3.45	.66	6.86	7.89	7.91	–	–
Old Deerfield 8–16–14 Concentrated Fertilizer (*a*)	3.62	1.05	3.20	1.02	8.89	16.72	13.75	–	–
Old Deerfield 8–16–20 Concentrated Fertilizer	3.41	.41	3.14	.81	7.77	16.22	24.05	–	–
Old Deerfield 8–16–20 Concentrated Potato, Potash other than Muriate, with 2% MgO	3.83	.78	2.89	1.03	8.53	18.14	19.93*b*	2.68	2.00
Old Deerfield 10–6–4 Tree & Turf	3.57	–	4.39	2.80	10.76	6.27	4.38	–	–
Olds & Whipple, Inc.									
O & W Special Fertilizer 4–3–12	.04	1.11	1.83	1.89	4.87	6.55	16.28*b*	–	–
O & W Special Fertilizer 4–3–12	.03	1.05	2.23	1.74	5.05	5.91	16.24*b*	–	–
O & W Market Garden Fertilizer 4–8–4	2.34	.62	.73	.64	4.33	8.33	4.24	–	–
O & W Market Garden Fertilizer 4–8–4	2.82	.17	1.34	.96	5.29	7.87	5.83*b*	–	–
O & W Market Garden Fertilizer 4–8–4	2.29	.68	.58	.70	4.25	8.30	3.82	–	–
O & W Potato & General Purpose Fertilizer 4–8–7	2.89	.40	.15	.80	4.24	8.33	7.23	–	–
O & W Potato & General Purpose Fertilizer 4–8–7	2.76	.61	.10	.77	4.24	8.37	8.30	–	–
O & W Complete Tobacco Fertilizer 5–3–5	.13	.50	1.01	3.62	5.26	4.15	5.62*b*	–	–
O & W Complete Tobacco Fertilizer 5–3–5	.24	.71	.86	3.29	5.10	4.06	5.70*b*	–	–
O & W High Grade Tobacco Starter & Potash Compound 5–5–15	.10	1.39	2.02	1.70	5.21	6.05	15.66*b*	–	–
O & W High Grade Tobacco Starter & Potash Compound 5–5–15	.10	1.56	2.05	1.30	5.01	6.41	15.31*b*	–	–

a One other sample was deficient: see analysis in table of "Mixtures showing a commercial shortage of $1 or more per ton."
b In forms other than muriate.

Mixtures Substantially Complying with Guarantees — Continued.

Name of Manufacturer and Brand	Nitrogen Found					Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found
	In Ammoniacal Forms	In Nitrate Forms	Water Soluble Organic	Water Insoluble Organic	Total		
Olds & Whipple, Inc.—Concluded							
O & W Potato & General Purpose Fertilizer 5–8–7	3.38	.58	.53	.85	5.34	8.30	7.42
O & W 5–10–5 Market Garden Fertilizer	3.59	.92	.39	.81	5.71	10.50	5.62
O & W 5–10–5 Market Garden Fertilizer	3.38	.55	.36	.84	5.13	10.56	5.39
O & W Fertilizer 5–10–10	3.84	.59	.14	.77	5.34	10.90	10.64
O & W Fertilizer 5–10–10	3.90	.57	.21	.81	5.49	10.88	11.01
O & W Blue Label Tobacco Fertilizer 6–3–6	.04	.75	1.31	4.05	6.15	3.78	7.53*b*
O & W Blue Label Tobacco Fertilizer 6–3–6	.39	.65	1.07	4.08	6.19	4.13	6.76*b*
O & W Blue Label Tobacco Fertilizer, Potash derived from Cotton Hull Ashes, 6–3–6	.06	.89	1.95	3.39	6.29	4.70	6.69*b*
O & W Fertilizer 6–8–9	1.96	–	2.15	2.70	6.81	8.63	12.75
O & W Fertilizer 6–8–9	2.09	.14	2.26	2.57	7.06	8.88	12.87
O & W Fertilizer 6–8–9	1.96	–	2.31	2.61	6.88	8.29	13.33
O & W 7–7–7 Top Dressing & Grass Fertilizer	3.46	2.84	.11	.87	7.28	7.53	7.89
O & W 7–7–7 Top Dressing & Grass Fertilizer	3.27	2.76	.12	.97	7.12	7.23	6.48
Organo, Inc.							
Organo 4–8–4	1.71	.44	.55	2.29	4.99	9.06	4.65
Organo 4–8–10	1.56	.92	.64	1.28	4.40	8.00	10.41
Organo 4–8–10	1.59	1.01	.64	1.32	4.56	8.59	10.62
Organo 4–12–4	2.10	.39	1.04	1.39	4.92	13.15	4.52
Organo 4–12–4	1.61	.41	1.05	1.99	5.06	13.13	4.07
Organo 5–8–7	1.56	1.09	1.57	1.59	5.81	8.99	7.33
Organo 5–8–7	2.58	1.01	1.25	1.08	5.92	8.30	6.63

Organo 5–8–10	1.99	.93	1.61	.96	5.49	8.77	10.00
Organo 5–8–10	1.21	.92	1.61	1.42	5.16	8.34	10.52
Organo 8–6–2	3.21	–	3.27	1.83	8.31	6.72	2.27
Organo 8–6–2	4.06	.18	3.13	1.64	9.01	7.08	2.73
F. G. Phillips Co.							
Ferti-Flora 3–3–3	1.22	1.92	.05	–	3.19	3.38	3.51
Ferti-Flora 3–3–3	1.22	1.92	.11	–	3.25	3.35	3.37
Plantabbs Co.							
Fulton's Plantabbs 11–15–20	3.70	7.93	.07	–	11.70	18.78	26.57
Fulton's Plantabbs 11–15–20	3.32	7.80	.56	–	11.68	20.14	25.62
Plantspur Products Co.							
Plantspur Fertilizer 3–3–2	4.44	–	.03	.52	4.99	3.02	1.56
Plantspur Fertilizer 3–3–2	3.24	.27	.05	.52	4.08	3.03	2.03
Rogers & Hubbard Co.							
Gro-Fast Plant Food 5–8–6	2.69	.03	.32	2.44	5.48	9.41	6.53
Gro-Fast Plant Food 5–8–6	2.15	–	.32	2.39	4.86	7.37	8.24
Hubbard's All Soils Fertilizer 4–8–4	1.60	.48	1.50	.61	4.19	8.32	4.11
Hubbard's All Soils Fertilizer 4–8–4	1.54	.49	1.64	.64	4.31	8.32	4.05
Hubbard's Alsop Mixture No. 2, 5–4–8	.06	1.10	1.68	2.64	5.48	5.24	11.12*b*
Hubbard's Climax Tobacco Fertilizer 5–3–5	.07	.92	1.74	2.75	5.48	3.03	5.91*b*
Hubbard's Corn Fertilizer 4–8–7	2.01	.68	.36	1.32	4.37	8.28	7.42
Hubbard's Corn Fertilizer 4–8–7	1.99	.74	.42	1.28	4.43	8.17	7.27
Hubbard's Corn & Grain Fertilizer 3–10–4	1.23	.55	.83	.82	3.43	10.34	4.57
Hubbard's Corn & Grain Fertilizer 3–10–4	1.30	.66	.90	.64	3.50	10.05	4.15
Hubbard's Cranberry Fertilizer 5–6–4	3.18	.35	1.10	.57	5.20	6.57	4.36
Hubbard's Cranberry Fertilizer 5–6–4	3.07	.53	1.09	.52	5.21	6.76	4.67
Hubbard's Fruit Fertilizer 8–8–8	5.52	2.21	.10	.17	8.00	8.71	7.71
Hubbard's Fruit Fertilizer 8–8–8	5.49	2.28	.12	.15	8.04	8.79	7.85

b In forms other than muriate.

Mixtures Substantially Complying with Guarantees — Continued.

Name of Manufacturer and Brand	Nitrogen Found					Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found
	In Ammoniacal Forms	In Nitrate Forms	Water Soluble Organic	Water Insoluble Organic	Total		
Rogers & Hubbard Co.—Concluded							
Hubbard's Golf Course Fertilizer 8-6-2	2.17	–	2.95	3.58	8.70	6.82	2.46
Hubbard's Golf Course Fertilizer 8-6-2	2.01	.08	2.62	3.71	8.42	6.81	2.42
Hubbard's High Potash Fertilizer 4-8-10	1.64	.57	1.54	.61	4.36	8.86	10.10
Hubbard's High Potash Fertilizer 4-8-10	1.67	.53	1.47	.57	4.24	8.24	9.38
Hubbard's Potato Fertilizer 5-8-7	2.05	.41	1.52	1.30	5.28	8.03	7.50
Hubbard's Potato Fertilizer 5-8-7	1.99	.61	1.46	1.09	5.15	8.20	6.53
Hubbard's Seeding Fertilizer 3-7-6	1.64	.10	.28	1.27	3.29	10.38	5.60
Hubbard's Seeding Fertilizer 3-7-6	1.52	.02	.33	1.23	3.10	9.69	5.50
Hubbard's Tobacco Grower 6-3-6	.18	.70	1.85	3.38	6.11	3.80	6.32*b*
Hubbard's Tobacco Grower 6-3-6	.07	.97	1.99	3.12	6.15	3.62	6.45*b*
Hubbard's Tobacco Grower 6-3-7	–	.84	2.07	3.21	6.12	3.34	7.25*b*
Hubbard's Tobacco Starter 5-5-15	.17	2.07	1.25	1.27	4.76	6.04	15.93*b*
Hubbard's Tobacco Starter 5-5-15	.14	2.06	1.81	1.05	5.06	6.17	16.15*b*
Hubbard's Top Dressing 8-5-8 (*a*)	.24	6.74	.17	.94	8.09	6.51	8.68
Hubbard's Vegetable Manure 5-8-10	1.00	.62	2.28	1.47	5.37	8.71	10.56
Red H Brand 4-8-4	2.89	.65	.52	.51	4.57	8.85	4.01
Red H Brand 4-8-4	2.69	.53	.45	.41	4.08	8.27	4.09
Red H Brand 4-8-7	2.96	.62	.36	.51	4.45	8.65	6.53
Red H Brand 4-8-7	2.59	.64	.63	.47	4.33	8.63	7.29
Red H Brand 4-8-10	2.80	.62	.55	.47	4.44	8.28	10.37
Red H Brand 4-8-10	2.75	.47	.57	.52	4.31	8.33	10.14
Red H Brand 4-12-4	3.10	.86	.17	.38	4.51	11.28	4.15

Red H Brand 5–8–7	3.88	.63	.63	.50	5.64	8.57	7.52
Red H Brand 5–8–7	3.73	.73	.60	.44	5.50	8.33	7.52
Red H Brand 5–8–10 (*a*)	3.14	.67	.77	.53	5.11	8.38	10.89
Red H Brand 5–10–5	3.57	.31	1.15	.40	5.43	10.84	4.71
Red H Brand 5–10–5	3.52	.32	1.16	.37	5.37	10.87	4.83
Red H Brand 5–10–10	3.62	.87	.61	.47	5.57	10.41	9.12
Red H Brand 7–6–6	5.10	.59	1.22	.42	7.33	6.38	5.90
Red H Brand 7–6–6	4.84	.12	1.62	.48	7.06	6.46	6.76
Red H Brand 7–7–7	4.84	.45	1.57	.42	7.28	8.34	8.39
Red H Brand 7–7–7	5.27	.53	1.04	.37	7.21	7.71	8.20
Red H Brand 8–16–14	5.93	.45	1.60	.20	8.18	16.39	13.10
Red H Brand 8–16–14	6.08	.60	1.30	.17	8.15	17.51	13.53
Red H Brand 8–16–14 (*a*)	5.79	.63	1.42	.19	8.03	17.64	13.80
William H. Rorer, Inc.							
Plant Dinner 5–7–5	.91	6.00	.10	.41	7.42	10.19	6.79
James A. Sawyer							
Tiz 2–2–1	1.19	.57	.80	1.10	3.66	3.00	1.03
O. M. Scott & Sons Co.							
Scotts Turf Builder 10–6–4	6.26	.11	.39	3.59	10.35	6.43	4.03
Scotts Turf Builder 10–6–4	6.46	–	.26	3.60	10.32	5.67	4.52
Standard Wholesale Phosphate & Acid Works, Inc.							
Standard 4–8–4	3.01	–	.38	.41	3.80	8.18	4.24
Standard 4–8–7	2.90	.20	.51	.33	3.94	8.17	6.80
Standard 5–8–7 (*d*)	3.71	.08	.45	.50	4.74	8.69	7.25
Standard 5–10–10	3.85	.15	.62	.44	5.06	11.16	9.78
Standard 7–7–7	6.75	–	.36	.30	7.41	7.27	7.62
Standard 7–7–7	6.17	–	.44	.33	6.94	7.83	7.03

a One other sample was deficient: see analysis in table of "Mixtures showing a commercial shortage of $1 or more per ton."
b In forms other than muriate.
d Two other samples were deficient: see analyses in table of "Mixtures showing a commercial shortage of $1 or more per ton."

Mixtures Substantially Complying with Guarantees — Concluded.

Name of Manufacturer and Brand	Nitrogen Found					Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found
	In Ammoniacal Forms	In Nitrate Forms	Water Soluble Organic	Water Insoluble Organic	Total		
Swift & Company Fertilizer Works							
Roselawn 5-8-7	3.36	.47	.70	.35	4.88	9.02	6.74
Roselawn 5-8-7	3.38	.47	.88	.28	5.01	8.37	7.11
Swift's N/eL 5-8-7	3.49	.36	.79	.29	4.93	8.63	7.09
Swift's Red Steer 3-12-6	2.02	.30	.29	.41	3.02	12.33	5.94
Swift's Red Steer 4-8-4	2.52	.42	.55	.35	3.84	8.13	5.36
Swift's Red Steer 5-8-7	3.52	.38	.81	.30	5.01	8.33	7.21
Swift's Red Steer 5-8-10	3.41	.34	.85	.28	4.88	11.13	10.23
Swift's Special Golf Fertilizer 12-6-4	11.42	.23	.22	.12	11.99	6.82	4.09
Vigoro 4-12-4	3.50	.42	.07	.24	4.23	12.02	4.46
Vigoro 4-12-4	2.61	.21	.38	1.00	4.20	12.51	4.44
Vigoro 4-12-4 (Tablets)	3.56	.35	.17	.34	4.42	12.10	4.32
F. Sylvester & Son							
Dove Brand Fertilizer 4-6-3	2.30	.02	.70	.79	3.81	7.59	4.34
Tennessee Corporation							
Loma 5-10-4	4.16	.22	.20	.44	5.02	10.38	4.11
Loma 5-10-4	4.06	.34	.11	.57	5.08	10.23	3.62
Universal Chemical Co.							
Electra Plant Food 4-9-3	2.30	.44	.34	2.97	6.05	11.04	2.81
Electra Plant Food 4-9-3	2.37	.38	.45	2.86	6.06	11.32	2.88
Virginia-Carolina Chemical Corporation							
V-C Fairway Fertilizer 6-8-4	5.41	.03	.94	.14	6.52	8.79	4.42
V-C Fairway Fertilizer 6-8-4	4.60	.18	.94	.18	5.90	9.45	4.0

C. P. Washburn Co.							
Corn and Vegetable 4-8-4	2.50	.70	.28	.41	3.89	8.55	4.32
Corn and Vegetable 4-8-4	2.45	.78	.23	.42	3.88	8.82	4.03
Market Garden 5-8-7	3.99	.67	.24	.43	5.33	8.82	7.03
Market Garden 5-8-7	4.04	.75	.24	.34	5.37	7.86	7.00
Special Potato 4-8-10	2.57	.78	.18	.47	4.00	8.44	10.02
Special Potato 4-8-10	2.62	.77	.24	.40	4.03	8.47	10.54
Top Dressing 7-6-6	5.84	.75	.07	.41	7.07	6.52	6.99
Winslow Nurseries							
Green Valley Plant Food 5-10-7	2.05	.55	1.26	1.39	5.23	10.44	8.36
Wirthmore Retail Stores							
Wirthmore 4-8-4	2.76	.66	.39	.47	4.28	8.86	4.34
Wirthmore 4-8-4	2.87	.65	.48	.47	4.47	8.75	4.19
Wirthmore 4-8-10	2.89	.59	.43	.42	4.33	8.39	10.48
Wirthmore 4-8-10	2.69	.61	.52	.43	4.25	8.37	10.27
Wirthmore 5-8-7	3.55	.56	.64	.43	5.18	8.35	7.09
Wirthmore 5-8-7	3.66	.41	.76	.44	5.27	8.19	7.09
Wirthmore 7-6-6	4.72	.81	1.50	.41	7.44	6.45	5.90
Wirthmore 7-6-6	4.75	.52	1.65	.38	7.30	6.22	5.22
Woodruff Fertilizer Works, Inc.							
Woodruff's 4-8-7 Fertilizer	2.47	–	.72	.70	3.89	8.07	7.42
Woodruff's 4-8-7 Fertilizer	2.43	.09	.72	.65	3.89	8.00	7.52
Woodruff's Big Crop Fertilizer 5-8-7	2.51	.73	.76	.95	4.95	8.18	7.52
Woodruff's Market Garden Fertilizer 4-8-4	2.48	.08	.73	.72	4.01	8.05	4.52
Woodruff's Onion Special Fertilizer 4-10-4	2.52	–	.76	.72	4.00	10.17	4.86
Woodruff's Tobacco Special Fertilizer 6-3-6	.14	.87	1.47	3.66	6.14	3.39	7.50*b*
Woodruff's Tobacco Starter 5-5-15	.09	1.80	2.29	.91	5.09	6.31	15.51*b*
Woodruff's Tobacco Starter 5-5-15	.03	1.74	2.28	1.00	5.05	5.20	14.92*b*
Woodruff's Top Dresser 7-6-6	4.43	1.26	.34	.70	6.73	6.28	6.65
Woodruff's Top Dresser 7-6-6	4.71	1.04	.29	.72	6.76	6.15	6.38

b In forms other than muriate.

CHEMICALS AND RAW PRODUCTS.

Summary of Results of the Inspection of Unmixed Fertilizers

Material.	Number of Analyses Made.	Average Percentage of Nitrogen	Average Percentage of Total Phosphoric Acid.	Average Percentage of Available Phosphoric Acid.	Average Percentage of Water Soluble Potash.	Average Selling Price Per Ton.	Cost of One Pound of Plant Food (Cents).
Nitrate of soda	6	16.22	–	–	–	$35.44	10.93 (nitrogen)
Nitrate of soda-potash	3	15.09	–	–	14.05*a*	46.56	10.93 (nitrogen) 4.83 (potash)
Sulfate of ammonia	9	20.72	–	–	–	38.10	9.19 (nitrogen)
Synthetic urea	3	42.89	–	–	–	68.00	7.93 (nitrogen)
Cyanamid	4	21.46	–	–	–	37.64	8.77 (nitrogen)
Ammo-Phos	2	11.06	50.88	50.67	–	74.46	9.19 (nitrogen) 5.34 (available phosphoric acid)
Cottonseed meal	9	6.82	2.73	2.57	1.55	30.01	18.84 (nitrogen)
Cottonseed meal-castor pomace	33	7.20	2.73	2.71	1.57	26.21	15.09 (nitrogen)
Soybean meal	5	7.33	1.67	1.39	2.20	31.34	18.78 (nitrogen)
Linseed meal	4	5.41	2.14	2.08	1.12	–	–
Castor pomace	5	5.54	2.53	2.41	.89	24.86	19.32 (nitrogen)
Milorganite	1	6.07	3.45	3.01	–	42.77	32.22 (nitrogen) 6.10 (available phosphoric acid)
Dried blood	2	13.53	–	–	–	79.26	29.29 (nitrogen)
Superphosphate 16%	10	–	18.46	18.00	–	16.30	4.53 (available phosphoric acid)
Superphosphate 20%	14	–	22.04	21.53	–	18.08	4.20 (available phosphoric acid)
Superphosphate 47%	1	–	49.80	49.46	–	43.53	4.40 (available phosphoric acid)
Phosphate rock, finely ground	1	–	34.69	–	–	–	–
Muriate of potash 50%	8	–	–	–	50.50	39.16	3.88 (potash)
Muriate of potash 60%	11	–	–	–	60.46	39.85	3.29 (potash)
High grade sulfate of potash	7	–	–	–	51.01*b*	50.16	4.92 (potash)
Sulfate of potash-magnesia	1	–	–	–	22.09*c*	–	–
Cotton hull ashes	3	–	–	–	32.52*d*	41.00	6.30 (potash)
Wood ashes	1	–	–	–	5.06*e*	–	–
Dry ground fish	9	9.78	7.02*f*	–	–	67.43	31.08 (nitrogen) 4.74 (phosphoric acid)
Animal tankage	8	8.20	9.60	–	–	41.70	20.81 (nitrogen) 3.94 (phosphoric acid)
Ground bone	26	3.20	25.19	–	–	45.27	31.06 (nitrogen) 5.04 (phosphoric acid)
Pulverized manures:							
Sheep	8	1.85	1.68	1.55	3.04	47.40	–
Sheep and goat	4	1.41	1.46	1.26	2.88	34.20	–
Cattle	5	2.31	2.53	2.00	1.92	44.89	–
Poultry	1	5.12	2.62	2.50	1.18	–	–
Poultry manure and peat	2	2.63	4.08	3.82	1.74	–	–
Sheep manure and wool waste	2	1.57	.58	–	3.10	–	–

a Average chlorine .40%.
b Average chlorine 2.00%.
c Chlorine 1.14%; water soluble magnesium oxide 18.74%.
d Average chlorine 3.15%.
e Chlorine .30%.
f Chlorine .43%.

Nitrogen Compounds

Sulfate of Ammonia and Nitrate of Soda

Manufacturer	Sulfate of Ammonia			Nitrate of Soda		
	Number of Samples	Nitrogen		Number of Samples	Nitrogen	
		Found	Guaranteed		Found	Guaranteed
American Agricultural Chemical Co.	1	20.51	20.50	–	–	–
Barrett Co.	1a	20.79	20.60	1a	16.36	16.00
	1	20.59	20.60	1a	16.29	16.00
Chilean Nitrate Sales Corporation	–	–	–	1a	16.22	16.00
	–	–	–	24a	16.24	16.00
	–	–	–	1b	16.08	16.00
	–	–	–	1c	16.14	16.00
Consolidated Rendering Co.	1	20.72	20.50	–	–	–
	21	20.88	20.50	–	–	–
	1	20.82	20.50	–	–	–
Eastern States Farmers' Exchange	1	20.76	20.50	–	–	–
Ford Motor Co.	1	20.80	20.80	–	–	–
Goulard & Olena, Inc.	1	20.86	20.75	–	–	–
International Agricultural Corporation	1	20.60	20.56	–	–	–

a Arcadian b Champion Brand c Old Style

Nitrate of Potash, Nitrate of Soda-Potash

Manufacturer and Brand	Nitrogen		Water Soluble Potash		Chlorine
	Found	Guaranteed	Found	Guaranteed	
Chilean Nitrate Sales Corporation					
Chilean Nitrate of Soda and Potash	15.00	15.00	14.73	14.00	.26
Old Deerfield Fertilizer Co., Inc.					
Nitrate of Potash	13.16	13.00	44.60	44.00	2.52
Nitrate of Soda and Potash	15.23	14.00	14.03	14.00	.46
Nitrate of Soda and Potash	15.04	14.00	13.37	14.00	.49

Cal-Nitro, Calcium Cyanamid, and Synthetic Urea

Manufacturer	Brand	Number of Samples	Nitrogen	
			Found	Guaranteed
American Cyanamid Co.	Aero 21% Cyanamid	1	21.07	21.00
	Aero 21% Cyanamid	3	21.26	21.00
	Aero 21% Cyanamid	1	21.24	21.00
	Aero 22% Cyanamid	1	22.26	22.00
E. I. du Pont de Nemours & Co., Inc.	Uramon	1	43.68	42.00
	Uramon	1	42.36	42.00
Eastern States Farmers' Exchange	Agricultural Urea	1	42.64	42.00
Old Deerfield Fertilizer Co., Inc.	Cal Nitro	1	20.64	20.50

Sample Showing Commercial Shortage of More than $1 per Ton

Apothecaries Hall Co.	Calnitro	1a	**19.44**	20.50

a Commercial shortage $2.30 per ton.

Cottonseed Meal–Castor Pomace Mixture

Manufacturer	Nitrogen		Manufacturer	Nitrogen	
	Found	Guaranteed		Found	Guaranteed
Ashcraft-Wilkinson Co.	6.79	6.56	Consolidated Rendering Co.—concluded	7.85	6.56
	6.88	6.56		7.55	6.56
	6.74	6.56		7.82	6.56
	6.72	6.56		7.75	6.56
	6.84	6.56		6.71	6.56
	6.65	6.56		6.59	6.56
	6.86	6.56		6.98	6.56
	7.59	6.56		7.38	6.56
	7.74	6.56	Old Deerfield Fertilizer Co., Inc.	7.24	6.56
	6.80	6.56		7.62	6.56
	6.93	6.56		6.80	6.56
	7.66	6.56		7.10	6.56
	7.67	6.56	Woodruff Fertilizer Works, Inc.	7.76	7.00
Berkshire Chemical Co.	6.72	6.56			
	6.91	6.56			
Consolidated Rendering Co.	7.67	6.56	**Sample Showing Commercial Shortage of More than $1 per Ton**		
	7.85	6.56			
	7.61	6.56			
	7.79	6.56	Old Deerfield Fertilizer Co., Inc.	**6.09***a*	6.56

a Commercial shortage $1.86 per ton.

Castor Pomace, Cottonseed Meal, Linseed Meal, Soybean Oil Meal

Manufacturer	Brand	Nitrogen	
		Found	Guaranteed
Apothecaries Hall Co.	Castor Pomace	5.40	4.50
	Castor Pomace	5.49	4.50
	Castor Pomace	5.76	4.50
Archer-Daniels-Midland Co.	Old Process Linseed Meal 37%	6.15	6.00
	Archer Brand Soybean Oil Meal 44%	7.38	7.00
	Archer Brand Soybean Oil Meal 44%	7.09	7.00
Armour Fertilizer Works	Castor Pomace	5.64	4.50
Ashcraft-Wilkinson Co.	Coweta Brand Cottonseed Meal 43%	7.31	6.88
	Coweta Brand Cottonseed Meal 43%	7.23	6.88
Central Soya Co., Inc.	Central Star Brand Soybean Oil Meal	7.85	7.04
Glidden Co., Soya Products Division	Glidden 4 Hi Brand Soybean Oil Meal 44%	7.31	7.00
L. B. Lovitt & Co.	Lovit Brand Cottonseed Meal 41%	6.57	6.56
National Lead Co., Atlantic Branch	Dutch Boy Old Process Linseed Meal 32%	5.09	5.00
	Dutch Boy Old Process Linseed Meal 32%	5.27	5.00
	Dutch Boy Old Process Linseed Meal 32%	5.11	5.00
Old Deerfield Fertilizer Co., Inc.	Cottonseed Meal 41%	6.65	6.56
	Cottonseed Meal 41%	6.59	6.56
	Cottonseed Meal 41%	6.84	6.56
	Cottonseed Meal 41%	6.82	6.56
A. E. Staley Manufacturing Co.	Staley's Soybean Oil Meal 41%	7.02	6.56

Animal Tankage, Ground Fish, Process Tankage, Dried Blood, Milorganite and Horn and Hoof Meal

These products were examined for evidence of adulteration by either the addition of inorganic nitrogen carriers or the inclusion of materials containing the major portion of their nitrogen in water soluble organic form. With one exception all samples tested contained normal percentages of water insoluble nitrogen. The water soluble nitrogen content of one sample of animal tankage was considerably above the average found in the other samples and must be considered as abnormal for animal tankage.

The activity of the water insoluble nitrogen of these organic fertilizers was tested by the alkaline permanganate method and in all cases was found well above the minimum percentage considered satisfactory, indicating either the absence of low grade, slowly available organics, or their presence in only small quantities.

None of these samples contained more than traces of ammonia nitrogen.

Dried Blood, Milorganite, Horn and Hoof Meal, Process Tankage, and Organo

Manufacturer and Brand	Nitrogen		Total Phosphoric Acid		Water Soluble Potash	
	Found	Guaranteed	Found	Guaranteed	Found	Guaranteed
American Agricultural Chemical Co.						
Agrinite	8.59	8.50	–	–	–	–
Consolidated Chemical Industries Inc.						
Protena Process Fertilizer Tankage	7.28	7.07	–	–	–	–
Organo, Inc.						
Organo No. 1	3.70	3.00	3.45	2.00	1.59	1.00
Organo No. 2	6.90	6.50	4.65	3.00	1.40	1.00
John Reardon & Sons Division of Wilson & Co., Inc.						
Rearco Dried Blood	13.04	12.00	–	–	–	–
Sewerage Commission of the City of Milwaukee						
Milorganite	6.07	6.00	3.45	–*a*	–	–
Universal Chemical Co.						
UCCO Brand Dried Blood	14.02	14.00	–	–	–	–

Sample Showing Commercial Shortage of More than $1 per Ton

Organo, Inc.						
Horn & Hoof Meal	13.52*b*	14.00	–	–	–	–

a Available phosphoric acid guaranteed 2.00%, found 3.01%.
b Commercial shortage $2.40 per ton.

Phosphoric Acid Compounds.

Manufacturer and Brand.	Number of Samples.	Total Phosphoric Acid.	Available Phosphoric Acid	
			Found.	Guaranteed.
American Agricultural Chemical Co.				
AA 16% Superphosphate	1	18.18	17.54	16.00
AA Superphosphate 20%	1	22.12	21.32	20.00
Co-op 16% Superphosphate	1	18.48	17.88	16.00
Apothecaries Hall Co.				
Superphosphate 16%	1	18.43	17.81	16.00
Superphosphate 20%	1	22.83	22.67	20.00
Armour Fertilizer Works				
Armour's Big Crop 16% Superphosphate	1	18.03	17.39	16.00
Armour's Big Crop 20% Superphosphate	1	21.83	21.09	20.00
Baugh & Sons Co.				
Baughphos The Ideal 16% Superphosphate	1	18.43	18.17	16.00
Baughphos The Ideal 20% Superphosphate	1	21.41	20.83	20.00
Consolidated Rendering Co.				
Superphosphate 16%	1	18.43	18.03	16.00
Superphosphate 20%	1	21.70	20.62	20.00
Superphosphate 20%	1	21.16	20.98	20.00
Superphosphate 20%	24	21.41	21.33	20.00
Davison Chemical Corporation				
Davco Granulated 20% Superphosphate	1	21.56	21.16	20.00
Davco Granulated 20% Superphosphate	1	22.47	21.69	20.00
Eastern States Farmers' Exchange				
Eastern States Superphosphate 20%	1	22.52	21.82	20.00
Eastern States Superphosphate 47% Triple	1	49.80	49.46	47.00
Goulard & Olena, Inc.				
G & O Superphosphate 20%	1	23.23	22.57	20.00
International Agricultural Corporation				
International 16% Superphosphate	1	18.28	17.96	16.00
International 20% Superphosphate	1	22.07	21.65	20.00
Old Deerfield Fertilizer Co., Inc.				
Old Deerfield Superphosphate 16%	1	18.48	18.14	16.00
Old Deerfield Superphosphate 20%	1	23.18	22.88	20.00
Rogers & Hubbard Co.				
Hubbard's 16% Superphosphate	1	19.54	19.38	16.00
Hubbard's 20% Superphosphate	1	21.00	20.84	20.00
Ruhm Phosphate & Chemical Co.				
Red Seal Brand Ruhm's Phosphate Rock (Washed & Ground)	1	34.69*a*	–	–
C. P. Washburn Co.				
Superphosphate 16%	1	18.18	17.74	16.00

a Total phosphoric acid guaranteed 33%: no available phosphoric acid guaranteed.

Products Supplying Nitrogen and Phosphoric Acid

Dry Ground Fish

Manufacturer.	Nitrogen.		Total Phosphoric Acid.		Chlorine
	Found.	Guaranteed.	Found.	Guaranteed.	
Apothecaries Hall Co.	10.06	9.00	7.22	5.00	.27
Armour Fertilizer Works	9.41	9.00	6.94	5.00	.60
Berkshire Chemical Co.	{10.24	9.00	6.06	5.00	.10
	{9.88	9.00	7.49	5.00	.42
Eastern States Farmers' Exchange	9.94	9.00	6.82	5.00	.68
International Agricultural Corporation	9.43	9.00	5.91	4.00	.64
Old Deerfield Fertilizer Co., Inc.	9.59	9.46	7.42	5.00	.37
Rogers & Hubbard Co.	10.21	9.46	7.37	5.00	.36

Ammo-Phos

Manufacturer.	Nitrogen.		Phosphoric Acid.		
			Total.	Available.	
	Found.	Guaranteed.		Found.	Guaranteed.
Armour Fertilizer Works	10.86	11.00	52.42	52.28	48.00

Animal Tankage

Manufacturer.	Number of Samples.	Nitrogen.		Total Phosphoric Acid.		Degree of Fineness.	
		Found.	Guaranteed.	Found.	Guaranteed.	Finer than 1/50 Inch.	Coarser than 1/50 Inch.
Armour Fertilizer Works .	1	7.47	7.40	6.49	4.00	60.83	39.17
Consolidated Rendering Co.	1	7.62	7.40	13.70	9.15	43.53	56.47
	1	8.27	8.00	9.86	4.58	40.91	59.09
	22	8.43	8.00	5.38	4.58	48.52	51.48
A. W. Hunt	1	5.03	5.00	17.17	14.00	43.30	56.70
N. Roy & Son	1	7.89	7.00	13.31	8.00	38.45	61.55
Woodard Bros.	1	4.57	4.50	23.30	18.00	38.40	61.60

Bone and Tankage

Manufacturer.	Nitrogen.		Total Phosphoric Acid.		Degree of Fineness.	
	Found.	Guaranteed.	Found.	Guaranteed.	Finer than 1/50 Inch.	Coarser than 1/50 Inch.
Consolidated Rendering Co.	4.01	4.00	22.87	20.00	25.01	74.99

Ground Bone

Manufacturer.	Nitrogen.		Total Phosphoric Acid.		Degree of Fineness.	
	Found.	Guaranteed.	Found.	Guaranteed.	Finer than 1/50 Inch.	Coarser than 1/50 Inch.
American Agricultural Chemical Co.	3.65	2.47	23.99	23.00	51.09	48.91
Apothecaries Hall Co.	2.83	2.25	24.95	22.00	67.50	32.50
	3.91	3.70	23.33	20.00	42.13	57.87
Baugh & Sons Co.	4.22	3.70	21.51	20.00	51.83	48.17
Berkshire Chemical Co.	2.25	2.05	29.75	25.00	79.00	21.00
	2.04	2.05	31.06	25.00	81.76	18.24
Joseph Breck & Sons Corporation	2.71	2.47	24.75	23.00	75.87	24.13
Consolidated Rendering Co.	2.62	2.47	23.74	23.00	77.25	22.75
	3.13	2.47	23.04	23.00	70.52	29.48
Eastern States Farmers' Exchange	2.59	2.30	30.47	23.00	75.06	24.94
Goulard & Olena, Inc.	3.81	2.40	23.53	22.75	41.21	58.79
A. H. Hoffman, Inc.	3.92	3.70	27.69	20.00	82.22	17.78
Insecticide Corporation of America	4.14	3.60	23.99	22.00	69.96	30.04
International Agricultural Corporation	3.14	2.47	23.28	23.00	84.03	15.97
	2.84	2.47	23.38	23.00	75.82	24.18
Old Deerfield Fertilizer Co., Inc.	2.55	2.47	28.31	22.00	88.85	11.15
Organo, Inc.	3.68	3.60	15.91	15.50	99.40	.60
John Reardon & Sons Division of Wilson & Co., Inc.	3.74	2.47	22.67	21.00	59.51	40.49
	3.87	2.47	22.77	21.00	63.20	36.80
Rogers & Hubbard Co.	2.34	2.47	30.60	23.00	83.33	16.67
	4.01	3.70	26.46	24.70	93.72	6.28
	4.28	3.70	24.29	20.00	46.07	53.93
Swift & Company Fertilizer Works	2.77	2.47	24.34	23.00	72.25	27.75
C. P. Washburn Co.	2.79	2.47	24.95	23.00	72.22	27.78
Samples Showing Commercial Shortage of More than $1 per Ton						
Armour Fertilizer Works	**2.09***a*	2.47	30.88	23.00	83.41	16.59
Organo, Inc.	**3.14***b*	3.60	16.92	15.50	99.58	.42

a Commercial shortage $2.34 per ton. *b* Commercial shortage $4.32 per ton.

Potash Compounds

Muriate and High Grade Sulfate of Potash and Sulfate of Potash-Magnesia.

Manufacturer.	Muriate of Potash.			High Grade Sulfate of Potash.			
	Number of Samples.	Water Soluble Potash.		Number of Samples.	Water Soluble Potash.		Chlorine.
		Found.	Guaranteed.		Found.	Guaranteed.	
American Agricultural Chemical Co.	24	60.25	60.00	1	51.66	48.00	1.72
	1	60.20	60.00	–	–	–	–
	1	49.76	50.00	–	–	–	–
American Potash & Chemical Corporation	1	60.32	60.00	–	–	–	–
Apothecaries Hall Co.	1	51.98	50.00	1	51.68	48.00	1.88
Armour Fertilizer Works	1	60.24	60.00	–	–	–	–
	1	49.59	50.00	–	–	–	–
	1	51.52	50.00	–	–	–	–
Baugh & Sons Co.	1	61.52	60.00	–	–	–	–
Berkshire Chemical Co.	–	–	–	1	48.35	48.00	1.90
Consolidated Rendering Co.	1	60.28	60.00	1	49.00	48.00	2.10
	1	50.82	50.00	–	–	–	–
Eastern States Farmers' Exchange	1	59.60	60.00	1	52.12	52.00	1.24
Goulard & Olena, Inc.	1	50.58	50.00	–	–	–	–
International Agricultural Corporation	1	60.48	60.00	–	–	–	–
Middlesex County Farm Bureau Association	1	60.96	60.00	–	–	–	–
Old Deerfield Fertilizer Co., Inc.	1	48.96	50.00	1	51.96	48.00	2.68
	–	–	–	1*a*	22.09	22.00	1.14
Rogers & Hubbard Co.	1	49.00	50.00	–	–	–	–
	1	60.86	60.00	–	–	–	–

a Low grade sulfate of potash-magnesia (Langbeinite).
Water soluble magnesium oxide 18.74%.

Pulverized Animal Manures

The analysis of these products includes determination of moisture, organic matter, and acid insoluble ash. The acid insoluble ash is mainly sand although it may contain other materials which are practically valueless as plant food.

As a rule animal manures are bought and used primarily for their content of ingredients other than nitrogen, phosphoric acid, and potash. Besides containing varying amounts of organic matter and considerable quantities of other major and minor elements, these manures possess other properties which cause them to be regarded as superior to other organic products for some uses. Calculated on the basis of the nitrogen, phosphoric acid, and potash content alone, the unit cost of each of these elements greatly exceeds the corresponding unit cost in other organic fertilizers. Economically, the payment of this higher unit cost is justified wherever it is found that animal manures are best suited for meeting special soil or plant requirements and that their use will lead to optimum results. Otherwise, if it is necessary or desirable to use organic sources of the three major elements in large quantities, consideration should be given to combinations of materials such as ground bone, animal tankage, ground fish, the seed meals, Milorganite, the process tankages, and cotton hull ashes, which will furnish the desired plant food more economically and in the case of nitrogen generally in a more available form.

Since it is realized that for some users and for some purposes the animal manures apparently possess a real or fancied advantage over the other organics great enough to cause a demand for their sale regardless of the economics involved, the moisture, organic matter, and acid insoluble ash content have been determined and published as a partial indication to the comparative values of the products sold. Naturally if either the moisture or the insoluble ash or both are excessively high in any animal manure, the organic matter must necessarily be correspondingly low, thus impairing the value of this particular product in comparison with another in which the proportion of these ingredients is reversed.

In general, the value of an animal manure, unmixed with other materials, varies somewhat in proportion to its organic matter content. This is not true of manures mixed with large quantities of peat, straw, wool waste, or similar materials which, since the organic matter they contain is very slowly available, have very little value as plant food and are used chiefly as soil conditioners.

All preceding references to manure in this article refer to the dried, pulverized, and bagged product. It is realized, of course, that ordinary barnyard manure produced on many farms plays an important part in the maintenance and improvement of soil fertility and is a valuable and economical source of plant food and organic matter.

Pulverized Animal Manures.

Manufacturer and Brand	Total Nitrogen		Total Phosphoric Acid		Available Phosphoric Acid		Water Soluble Potash		Organic Matter	Acid Insoluble Ash	Moisture
	Found	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found	Guaranteed			
American Agricultural Chemical Co. Pulverized Sheep & Goat Manure	1.51	1.25	.98	1.00	–	–	2.46	2.00	35.15	19.60	22.55
Apothecaries Hall Co. Liberty Domestic Sheep Manure	1.46	1.00	1.11	.50	–	–	3.72	1.00	48.85	25.15	11.60
Armour Fertilizer Works Sheep & Goat Manure	1.45	1.25	1.48	1.00	–	–	3.20	2.00	42.75	30.38	12.55
Atkins & Durbrow, Inc. Driconure	3.26	2.00	3.64	1.00	–	–	1.80	1.00	73.75	2.50	10.35
Baugh & Sons Co. Domestic Sheep Manure	2.12	1.50	1.64	1.00	–	–	1.01	1.00	52.15	29.00	8.03
Berkshire Chemical Co. Berkshire Sheep & Goat Manure	1.22	1.25	1.59	1.00	–	–	2.83	2.00	24.80	24.50	26.35
Buell Fertilizer Co. Buell Peat-Poultry Manure	2.69	2.50	3.91	–	3.69	2.50	1.63	1.50	62.45	6.40	16.15
Consolidated Rendering Co. Coreneo Sheep Manure	1.50	1.25	1.07	1.00	–	–	3.10	2.00	36.00	20.10	19.30
Davey Tree Expert Co. Davey Shredded Cattle Manure	1.97	1.00	2.88	1.00	2.70	1.00	2.07	2.00	77.73	2.60	6.23
Glendale Poultry Farm "Biff" Peat Poultry Manure	2.56	2.00	4.24	–	3.94	3.00	1.84	1.00	61.45	4.50	15.35
A. H. Hoffman, Inc.											
Hoffman's Cow Manure (Dehydrated)	2.04	2.00	2.24	–	2.08	2.00	2.09	2.00	79.65	1.90	6.35
Hoffman's Sheep Manure (Kiln-Dried)	1.98	1.85	2.55	–	2.49	1.00	3.00	2.00	53.70	23.90	3.95
International Agricultural Corporation International Caribee Sheep Manure	1.68	1.25	1.57	1.00	1.51	.75	3.47	2.00	35.20	21.10	14.25

Premier Poultry Manure Division, North American Car Corporation											
Premier Brand Pulverized Poultry Manure	5.12	4.93	2.62	2.75	2.50	2.50	1.18	1.30	64.10	13.65	8.30
Premier Pulverized Sheep Manure	1.78	1.65	2.09	1.00	1.41	.75	2.56	2.00	54.75	17.15	6.35
Pulverized Manure Co.											
Wizard Brand Cow Manure	2.12	2.00	1.36	1.00	–	–	1.51	1.00	62.70	17.70	8.35
Wizard Brand Pulverized Sheep Manure	2.21	2.00	1.82	1.00	–	–	4.21	2.00	61.55	12.30	9.00
Ramshorn Mills, Inc.											
Ramshorn Brand Natural Sheep Manure—Wool Waste	2.17	1.50	.74	–	.72	.50	3.60	3.75	44.70	34.05	6.50
Rogers & Hubbard Co.											
Hubbard's Sheep & Goat Manure	1.45	1.25	1.77	1.00	–	–	3.04	2.00	29.20	22.45	22.75
Swift & Company Fertilizer Works											
Swift's Sheep Manure	2.09	1.85	1.59	1.00	–	–	3.28	1.75	59.23	22.28	5.35
Walker-Gordon Laboratory Co., Inc.											
Bovung	2.15	2.00	2.53	2.00	–	–	2.15	2.00	80.25	2.65	3.85

Sample Seriously Deficient

Norwood Brand Fertilizer Co.											
Norwood Brand Sheep Manure—Wool Waste	.97	1.83	.42	.89	–	–	2.60	1.03	27.70	55.03	3.55

Miscellaneous Fertilizer Materials

Cotton Hull Ashes and Wood Ashes

Manufacturer	Brand	Water Soluble Potash		Chlorine
		Found	Guaranteed	
Apothecaries Hall Co.	Cotton Hull Ashes	29.14	25.00	2.96
J. W. Joynt	Wood Ashes	5.06	3.00	.30
Old Deerfield Fertilizer Co., Inc.	Cotton Hull Ashes 30%	31.46	30.00	3.64

Sample Showing Commercial Shortage of More than $1 per Ton

Eastern States Farmers' Exchange	Cotton Hull Ash	36.94a	38.00	2.84

a Commercial shortage $1.14 per ton.

Commercial Peat Products

Manufacturer and Brand	Moisture	Organic Matter	Acid Insoluble Ash	Nitrogen	
				Found	Guaranteed
L. H. Brague					
Hinsdale Leafmold (Soil-Co)	60.00	35.75	3.30	.68	.50
Florida Humus Co.					
Florida Humus	25.25	69.40	2.40	2.49	2.00

AGRICULTURAL LIME PRODUCTS

Manufacturers and Brands

During 1941, 20 firms registered for sale in Massachusetts 42 brands of lime products, manufactured and sold for neutralizing acid soils, two brands of gypsum, and one brand of agricultural talc. The products are grouped as follows:

Hydrated or slaked lime	24
Pulverized and ground limestone	17
Lime ashes	1
Total	42
Gypsum	2
Talc	1

The analytical results which appear in this bulletin represent officially drawn samples secured by the same sampling agents who drew the samples of commercial fertilizer which served for the inspection of that commodity; the samples therefore came from every section of the state and are, we believe, representative of the lime products sold in Massachusetts as soil amendments.

We were not successful in securing samples of the following brands:

Brewer & Co., Inc., 45 Arctic Street, Worcester, Mass.
Lime Kiln Ashes

Connecticut Adamant Plaster Co., 10 River Street, New Haven, Conn.
Nova Scotia Brand Land Plaster

Eastern States Farmers' Exchange, Springfield, Mass.
Eastern States Land Lime

L. A. Howard Talc Co., Proctorsville, Vt.
Howard's Agricultural Talc

Limestone Products Corporation of North America, Newton, N. J.
"Lime Crest" Brand Calcite Hydrated Lime for Agricultural Use

New England Lime Co., Adams, Mass.
Nelco Agricultural Hydrated Lime (Adams)

Solvay Process Co., Syracuse, N. Y.
Solvay Pulverized Limestone

United States Gypsum Co., 300 West Adams Street, Chicago, Ill.
USG Agricultural Hydrated Lime

Variations and Deficiencies Found in the Composition of Lime Products

Of the lime products effective in neutralizing soil acidity, about 84 per cent of those analyzed fully met the minimum guarantee; of the 22 ground limestone products, 8 showed deficiencies. Most of the deficiencies were not of a serious nature as the companion ingredient was present in sufficient excess to more than make up the full neutralizing value of the product as based on the stated guarantee. The same may be said of the hydrated lime products where only 2 out of 22 samples, about 9 per cent, showed deficiencies. The tables of analyses show the extent of variations from the guaranteed composition.

Explanation of Tables of Analyses

Tables I, II, III, "Neutralizing value expressed in terms of calcium oxide" represents the acid neutralizing value of both the magnesium and the calcium. The figures in the "per cent" column are obtained by a direct titration with standard acid. The "pounds in one ton" are secured by multiplying the figures in the "per cent" column by 20.

"Insoluble matter" represents material which is insoluble in dilute hydrochloric acid to which a few drops of nitric acid have been added, and is mainly sand.

Tables II and III, "Carbonates of calcium and magnesium." The figures in this column are exclusive of the small amounts of calcium and magnesium combined as basic silicates; these are readily soluble in mineral acid solutions but obviously should not be classed as carbonates.

Under "Mechanical analysis" the figures represent in round numbers the percentage of product that would pass or be retained by the meshed sieves mentioned.

The limestone products have been published in two groups or grades (see tables II and III) according to fineness of grinding and to conform to definitions voted by the Association of Official Agricultural Chemists at their 1936 meeting.

Table I. Hydrated or Slaked Lime

Name of Manufacturer and Brand	Calcium Oxide (CaO)		Magnesium Oxide (MgO)		Neutralizing Value Expressed in Terms of Calcium Oxide		Insoluble Matter
	Found	Guaranteed	Found	Guaranteed	Per Cent	Pounds in One Ton	
Brewer & Co., Inc., 45 Arctic St., Worcester, Mass.							
Green Mountain Handy Hydrate	65.65	65.00	1.72	1.00	66.31	1,326	3.65
Producto Agricultural Lime	61.02	60.00	2.76	1.00	66.74	1,335	5.40
Snow Fluff Agricultural Hydrate	70.79	70.00	3.16	5.00	73.88	1,478	1.75
Sure Crop Agricultural Hydrated Lime	65.73	65.00	1.44	1.00	65.61	1,312	3.45
Eastern States Farmers' Exchange, Springfield, Mass.							
Eastern States Magnesian Hydrated Lime	48.03	47.00	31.84	31.00	91.12	1,822	.95
Eastern States Magnesian Hydrated Lime	48.48	47.00	31.66	31.00	91.55	1,831	.85
Harris Lime Co., Saylesville, R. I.							
Harris Agricultural Hydrate	50.75	50.00	25.48	22.00	83.98	1,680	3.85
A. H. Hoffman, Inc., Landisville, Penn.							
Hoffman's Hydrated Lime	70.53	70.00	2.14	1.00	72.20	1,444	1.55
Hoosac Valley Lime Co., Inc., Adams, Mass.							
Adams Land Lime	62.45	60.00	1.80	.50	63.93	1,279	4.95
Hoosac Agricultural Hydrated Lime	72.01	65.00	1.32	.50	72.62	1,452	1.35
Kelley Island Lime & Transport Co., 1122 Leader Bldg., Cleveland, Ohio							
Tiger All Purpose Hydrated Lime	47.12	47.12	33.03	34.14	90.71	1,814	.20
Lawrence Portland Cement Co., Thomaston, Maine							
Dragon "Mainrok" Land Lime	69.20	60.00	1.24	.20	69.68	1,394	1.25
Lee Lime Corporation, Lee, Mass.							
Agricultural Hydrated Lime	47.45	46.00	32.72	31.00	90.99	1,820	1.05
Agricultural Hydrated Lime	47.12	46.00	32.16	31.00	90.99	1,820	1.10
Land Lime	41.28	35.00	27.40	25.00	78.50	1,570	1.30

Clifford L. Miller, West Stockbridge, Mass.							
Monarque Hydrated Lime	68.24	60.00	5.64	4.00	75.00	1,500	1.45
New England Lime Co., Adams, Mass.							
Nelco Agricultural Hydrated Lime	47.26	47.00	31.92	31.00	90.84	1,817	.85
Nelco Land Lime	41.34	35.00	28.68	25.00	79.63	1,593	2.10
Rockland-Rockport Lime Co., Inc., Rockland, Maine							
R-R Land Lime, Grade C	61.44	60.00	1.72	.50	63.23	1,265	1.70
Sanilime	71.37	70.00	2.10	.20	72.90	1,458	.75
United States Gypsum Co., 300 West Adams St., Chicago, Ill.							
USG Agricultural Land Lime	71.06	60.00	1.00	–	72.20	1,444	.95
USG Red Top Hydrated Lime	72.94	70.00	1.16	–	73.46	1,469	.45

Table II. Pulverized Limestone (Fine-Ground Limestone)

Name of Manufacturer and Brand.	Calcium Oxide (CaO).		Magnesium Oxide (MgO).		Carbonates of Calcium and Magnesium		Neutralizing Value Expressed in Terms of Calcium Oxide		Insoluble Matter	Mechanical Analysis (Per Cent)	
	Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.	Per Cent.	Pounds In One Ton.		Finer than 100-mesh	Coarser than 20-mesh
Hoosac Marble Co., North Adams, Mass.											
Ground Limestone	52.12	52.46	1.44	.60	96.02	97.03	53.58	1,072	3.80	99.16	none
Hoosac Valley Lime Co., Inc., Adams, Mass.											
Hoosac Agricultural Limestone	52.25	51.50	1.23	.50	95.81	90.00	53.00	1,060	4.64	94.05	.06
Lee Lime Corporation, Lee, Mass.											
Agricultural Tobey Pulverized Limestone	40.70	35.00	10.08	10.00	93.71	90.00	53.84	1,077	6.25	88.28	.36
Limestone Products Corporation of America, Newton, N. J.											
"Lime Crest" Brand Calcite Pulverized	36.58	42.00	11.24	2.00	86.80	90.00	49.80	996	12.25	88.41	.73
New England Lime Co., Adams, Mass.											
Nelco Agricultural Limestone (Adams)	54.20	53.50	.68	1.10	98.14	96.30	55.20	1,104	1.29	100.00	none
Nelco Agricultural Ground Limestone (Canaan, Conn.)	30.77	30.00	21.33	21.00	98.72	97.40	59.23	1,185	.90	86.21	.10
Rockland-Rockport Lime Co., Inc., Rockland, Maine											
R-R Ground Limestone, Grade C (*a*)	33.61	50.00	18.64	–	97.31	92.00	57.90	1,158	1.90	92.08	none
R-R Ground Limestone, Grade C (*a*)	31.45	50.00	18.76	–	93.27	92.00	55.73	1,115	5.73	98.49	.04
R-R Ground Limestone, Grade M	31.84	30.00	19.56	17.00	97.73	94.00	57.83	1,157	1.65	80.48	.11
D. U. Smith & Bro., Ashley Falls, Mass.											
Ashley White Dolomite	30.72	30.00	21.66	21.00	97.98	98.00	59.44	1,189	1.00	81.06	.10
Ashley White Dolomite	30.82	30.00	21.22	21.00	98.94	98.00	59.59	1,192	.85	76.56	.09
United States Gypsum Co., 300 West Adams St., Chicago, Ill.											
USG Agricultural Limestone—Falls Village, Conn.	31.64	30.00	20.72	20.00	97.99	95.00	59.33	1,187	1.15	74.77	.08
USG Agricultural Limestone—Falls Village, Conn.	30.52	30.00	20.44	20.00	94.98	95.00	57.58	1,152	3.95	76.42	none
USG Agricultural Limestone—Farnams, Mass.	53.72	53.20	1.08	.50	96.83	96.00	54.05	1,081	3.00	83.77	.06

a This product apparently carried the wrong label. The analysis corresponds to the guaranteed composition of the Grade M brand.

Table III. Ground Limestone (Coarse-Ground Limestone)

Name of Manufacturer and Brand.	Calcium Oxide (CaO).		Magnesium Oxide (MgO).		Carbonates of Calcium and Magnesium		Neutralizing Value Expressed in Terms of Calcium Oxide		Insoluble Matter	Mechanical Analysis (Per Cent)	
	Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.	Per Cent.	Pounds In One Ton.		Finer than 100-mesh	Coarser than 20-mesh
Conklin Limestone Co., Inc., Canaan, Conn.											
High Magnesium Agricultural Ground Limestone	29.60	30.00	20.06	21.00	93.01	90.00	56.46	1,129	6.15	49.81	1.19
Grangers Manufacturing Co., 53 State St., Boston, Mass.											
Grangers Agricultural Limestone	42.16	34.00	7.24	6.00	88.68	90.00	50.99	1,020	10.25	65.23	3.21
Harris Lime Co., Saylesville, R. I.											
Harris Agricultural Ground Limestone	35.33	30.00	13.76	20.00	87.94	–	51.45	1,029	10.20	73.19	none
Harris Agricultural Ground Limestone (composite of 2 samples)	36.08	30.00	12.78	20.00	87.44	–	51.38	1,028	10.80	70.20	none
Hoosac Valley Lime Co., Inc., Adams, Mass.											
Hoosac Agricultural Limestone	51.70	51.50	.88	.50	94.10	90.00	52.72	1,054	5.10	69.86	.82
Lee Lime Corporation, Lee, Mass.											
Agricultural Pulverized Limestone (composite of 15 samples)	31.23	30.00	21.28	20.00	97.20	93.00	59.54	1,191	1.35	71.50	.37
Agricultural Pulverized Limestone	30.77	30.00	21.28	20.00	98.28	93.00	58.70	1,174	1.70	71.28	1.54
Clifford L. Miller, West Stockbridge, Mass.											
Monarque Pulverized Limestone	39.99	39.00	10.80	11.00	93.37	–	53.51	1,070	6.35	73.88	.69

Table IV. Gypsum or Land Plaster

Name of Manufacturer and Brand	Calcium Oxide (CaO)		Calcium Sulfate ($CaSO_4$)		Moisture
	Found	Guaranteed	Found	Guaranteed	
United States Gypsum Co., 300 West Adams St., Chicago, Ill.					
USG Ben Franklin Agricultural Gypsum	32.92	30.00	72.91	64.50	15.13

DIRECTORY OF MANUFACTURERS WHO REGISTERED FERTILIZERS FOR SALE IN MASSACHUSETTS IN 1941

Acme Guano Co., 310 Marine Bank Bldg., Baltimore, Md.
Agricultural Laboratories, Inc., Columbus, Ohio
Agro-Chem Laboratories, Inc., 1852 Georgia Ave., Toledo, Ohio
American Agricultural Chemical Co., North Weymouth, Mass.
American Cyanamid Co., 30 Rockefeller Plaza, New York, N. Y.
American Potash & Chemical Corporation, Trona, Cal.
Apothecaries Hall Co., Waterbury, Conn.
Archer-Daniels-Midland Co., 600 Roanoke Bldg., Minneapolis, Minn.
Armour Fertilizer Works, 80 Eighth Ave., New York, N. Y.
Ashcraft-Wilkinson Co., 601 Trust Company of Georgia Bldg., Atlanta, Ga.
Atkins & Durbrow, Inc., 165 John St., New York, N. Y.
Ernest J. Bantle, 130 Griswold St., Glastonbury, Conn.
Barrett Co., 40 Rector St., New York, N. Y.
F. A. Bartlett Tree Expert Co., Inc., 60 Canal St., Stamford, Conn.
Baugh & Sons Co., 20 South Delaware Ave., Philadelphia, Penn.
Belmont Gardens, W. E. Lenk, Proprietor, 170 Brighton St., Belmont, Mass.
Berkshire Chemical Co., 92 Howard Ave., Bridgeport, Conn.
L. H Brague, 52 Bartlett Ave., Pittsfield, Mass.
Joseph Breck & Sons Corporation, 85 State St., Boston, Mass.
Brewer Tree Expert Co., 390 Main St., Worcester, Mass.
Buell Fertilizer Co., Exeter, N. H.
W. Atlee Burpee Co., 18th St. and Hunting Park Ave., Philadelphia, Penn.
Central Soya Co., Inc., Ft. Wayne, Ind.
Chilean Nitrate Sales Corporation, 120 Broadway, New York, N. Y.
Collins Seed Service Co., 131 Beverly St., Boston, Mass.
Comfort Manufacturing Co , 500 South Throop St., Chicago, Ill.
Consolidated Chemical Industries, Inc., 630 Fifth Ave., New York N. Y.
Consolidated Rendering Co., 178 Atlantic Ave., Boston, Mass.
Davey Tree Expert Co., Kent, Ohio
Davison Chemical Corporation, Rouse Bldg., Baltimore, Md.
E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.
Eastern States Farmers' Exchange, Springfield, Mass
Ellis Chemicals, Inc., 92 Greenwood Ave., Montclair, N. J.
Thomas W. Emerson Co., 215 State St., Boston, Mass.
Excell Laboratories, 2625 Indiana Ave., Chicago, Ill.
Florida Humus Co., Zellwood, Fla.
Ford Motor Co., 3674 Schaefer Road, Dearborn, Mich.
H. L. Frost & Higgins Co., 20 Mill St., Arlington, Mass.
Garden Hose Spray Co., Inc., 89 Broadway, Cambridge, Mass.
Glendale Poultry Farm, Somerset, Mass.
Glidden Co., Soya Products Division, 5165 West Moffat St., Chicago, Ill.
Goulard & Olena, Inc., 110 Liberty St., New York, N. Y.
Greenlands Services, Inc., Eastman St., Concord, N. H.
Thomas J. Grey Co., 16 South Market St., Boston, Mass.
Hartney-Amalia, Inc., 581 Boylston St., Boston, Mass.
Henderson & Herndon Tree Co., Inc., 9 Story Ave., Beverly, Mass.

Hixon Tree Co., Segreganset, Mass.
A. H. Hoffman, Inc., Landisville, Penn.
Humphreys-Godwin Co., Memphis, Tenn.
A. W. Hunt, Weston, Mass.
Hydroponic Chemical Co., Inc., 315 West 39th St., New York, N. Y.
Hy-Trous Corporation, 376 Washington Ave., Malden, Mass.
Insecticide Corporation of America, 326 Commercial St., Malden, Mass.
International Agricultural Corporation, Woburn, Mass.
J. W. Joynt, Lueknow, Ontario, Canada
Kem Laboratories, Arnot St. and Mercer Pl., Lodi, N. J.
L. B. Lovitt & Co., Memphis, Tenn.
John D. Lyon, Inc., 17 Bartlett Ave., Belmont, Mass.
McClain Brothers Co., Canton, Ohio
Mechling Bros. Chemicals, Division of General Chemical Co., 12 South 12th St., Philadelphia, Penn.
Middlesex County Farm Bureau Association, 131 Lexington St., Waltham, Mass.
Miller Chemical & Fertilizer Corporation, 1000 South Caroline St., Baltimore, Md.
National Lead Co., Atlantic Branch, 111 Broadway, New York, N. Y.
National Plant Foods, Inc., Cranbury, N. J.
New England Toro Co., 1121 Washington St., West Newton, Mass.
New England Tree Expert Co., Inc., 539 Smithfield Ave., Pawtucket, R. I.
Norwood Brand Fertilizer Co., Park St., North Reading, Mass.
Old Deerfield Fertilizer Co., Inc., South Deerfield, Mass.
Olds & Whipple, Inc., 168 State St., Hartford, Conn.
Organo, Inc., 617 Concord Ave., Cambridge, Mass.
F. G. Phillips Co., 37 Circuit Road, Dedham, Mass.
Plantabbs Co., Baltimore, Md.
Plantspur Products Co., Ridgefield, N. J.
Premier Poultry Manure Division, North American Car Corporation, 327 South La Salle St., Chicago, Ill.
Pulverized Manure Co., 503 Exchange Bldg., Union Stock Yards, Chicago, Ill.
Ramshorn Mills, Inc., West Millbury, Mass.
Ra-Pid-Gro Corporation, 88 Ossian St., Dansville, N. Y.
John Reardon & Sons Division of Wilson & Co., Inc., 51 Waverly St., Cambridge, Mass.
Rogers & Hubbard Co., Portland, Conn.
William H. Rorer, Inc., 254 South 4th St., Philadelphia, Penn.
N. Roy & Son, South Attleboro, Mass.
Ruhm Phosphate & Chemical Co., Mt. Pleasant, Tenn.
James A. Sawyer, 8 Washington St., North Easton, Mass.
O. M. Scott & Sons Co., Marysville, Ohio
Sewerage Commission of the City of Milwaukee, P. O. Box 2079, Milwaukee, Wis.
A. E. Staley Manufacturing Co., Decatur, Ill.
Standard Wholesale Phosphate & Acid Works, Inc., 1600 Mercantile Trust Bldg., Baltimore, Md.
Swift & Company Fertilizer Works, 910 Court Square Bldg., Baltimore, Md.
F. Sylvester & Son, 86 Baxter St., Melrose, Mass.
Tennessee Corporation, Lockland, Ohio
Universal Chemical Co., 106 Ontario St., Lynn, Mass.
Virginia-Carolina Chemical Corporation, Carteret, N. J.
Walker-Gordon Laboratory Co., Inc., Plainsboro, N. J.
C. P. Washburn Co., Middleboro, Mass.
Winslow Nurseries, Great Plain Ave., Needham, Mass.
Wirthmore Retail Stores, Greenfield, Mass.
Woodard Bros., Greenfield, Mass.
Woodruff Fertilizer Works, Inc., Orange, Conn.

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MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

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Inspection of Commercial Feedstuffs

By Philip H. Smith

This is the forty-seventh report of feeding stuffs inspection and presents the results of analysis of 1,744 samples of feeding stuffs intended for livestock and poultry consumption, collected during the year ending September 1, 1941.

MASSACHUSETTS STATE COLLEGE
AMHERST, MASS.

INSPECTION OF COMMERCIAL FEEDSTUFFS

By Philip H. Smith[1]

This bulletin is a record of the work accomplished in checking the sales of commercial feeding stuffs in Massachusetts against the requirements of the Feeding Stuffs Act. It is simply that and nothing more. While it is true that one feed may prove superior to another containing identical amounts of protein, fat, and fiber, it is also true that no adequate methods have been devised that can be used in the laboratory in the handling of a large number of feed samples for the determination of quality factors other than those required by the present guarantee. Such methods if they exist at all are usually slow and cumbersome and if used would limit the work to a very few samples of feed, while the law states explicitly that every brand of feed registered shall be examined annually. The value of a feed depends not only upon its protein, fat, fiber, ash, and ingredient content, but also upon the kind and quality of the protein, fat, fiber, and ash, the quality of the ingredients, the vitamin content, and quite possibly upon other factors not now recognized.

While it is true that feeding stuffs legislation as it now exists on the statute books of the various states has decided limitations, it is equally true that the information now required in the guarantee is of importance to the prospective purchaser. Recognizing the limitations of present feeding stuffs law, an attempt will be made at the next session of the Legislature to bring the act more nearly up to date and to couch the act in such terms as to allow the enforcing official to keep pace with scientific progress in advisable guarantee requirements without future amendment of the law.

Through long experience a feed control official will come to understand that the names of certain manufacturers when attached to a sack of feed are in themselves a guarantee of quality. Any further information is extraneous. Such manufacturers maintain their own laboratories and experimental farms and utilize in the making of their products new scientific discoveries as they come to light. It is to be regretted that others not so ethical in their conduct continue in business.

To date (September 1, 1941) 1,311 brands of feeding stuffs have been registered for sale in Massachusetts for the current year. The intention is to collect at least one sample of each feed registered, which has not proved possible. It is believed, however, that the feeds herein reported represent the greater part of the tonnage sold. In addition, this report includes the assay of 12 samples of vitamin feeding oil and the analysis of nine samples of feeding molasses.

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[1]The following staff members assisted in the inspection: John W. Kuzmeski, H. Robert DeRose, Albert F. Spelman, Leo V. Crowley, and Francis J. Farren, chemists; Frederick A. McLaughlin, microscopist; James T. Howard, inspector; Cora B. Grover, Clerk.

Complete Average Analyses of Feeds Collected (Per Cent)

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Acme-Evans Milling Co.									
1	Acme Wheat Flour Middlings	12.7	15.4	15.0	3.9	3.5	57.3	6.7	6.5	4.0
1	Acme Hominy Feed	10.9	10.6	10.0	7.4	7.0	63.8	4.8	6.0	2.5
	Albers Bros. Milling Co.									
2	Proven Calf Manna	8.3	27.3	25.0	4.8	4.0	49.4	3.0	5.0	7.2
	Allied Mills, Inc.									
3	Brewers' Dried Grains	6.4	30.1	24.0	6.8	5.0	39.1	14.1	18.0	3.5
2	Economy 20% Dairy Feed	12.1	21.0	20.0	4.3	3.5	46.4	8.6	11.0	7.6
2	June Pasture Pellets	10.3	15.2	14.0	2.3	1.5	45.6	19.1	21.0	7.5
1	Sugarine 24% Dairy Feed	12.6	24.4	24.0	4.2	3.5	42.7	7.4	12.0	8.7
2	Sugarine 20% Dairy Feed	12.8	19.2	20.0	4.0	3.5	47.4	7.7	12.0	8.9
2	Sugarine 16½% Dairy Feed	12.9	18.0	16.5	3.5	3.0	49.6	8.0	12.0	8.0
2	Wayne All Mash Poultry Ration	10.6	16.2	15.0	4.8	3.5	55.0	6.1	7.0	7.3
1	Wayne Calf Meal	10.3	26.7	24.0	5.2	4.0	43.0	6.8	7.0	8.0
2	Wayne Chick Feed	11.4	11.9	9.0	4.3	2.0	68.7	1.7	4.0	2.0
1	Wayne Chick Starter	11.5	18.7	18.0	4.9	4.0	52.8	5.9	7.0	6.2
2	Wayne Chick and Broiler Ration	11.9	20.3	19.0	4.9	3.5	51.2	5.6	8.0	6.1
3	Wayne Complete Calf Feed	11.7	17.5	16.0	4.3	3.3	51.3	7.7	9.0	7.5
3	Wayne Egg & Breeder Mash	11.1	21.3	20.0	5.2	3.5	48.8	5.9	8.0	7.7
3	Wayne Fitting Ration	12.2	15.1	12.0	4.3	3.5	54.5	7.3	9.0	6.6
3	Wayne Flushing Mash	10.4	22.2	20.0	4.3	3.0	50.6	3.8	6.0	8.7
1	Wayne Growing Mash	11.4	16.5	16.0	4.6	3.5	54.3	6.4	7.0	6.8
3	Wayne Horse Feed	13.3	10.4	9.5	3.4	3.0	65.1	5.3	8.0	2.5
2	Wayne Laying Mash	11.7	19.3	18.0	5.0	3.5	50.1	6.8	8.0	7.1
3	Wayne 26% Mash Supplement	10.2	26.8	26.0	5.0	3.5	36.4	8.3	10.0	13.3
1	Wayne Pig Starter	11.0	20.0	19.0	4.2	3.5	49.6	5.9	7.0	9.3
3	Wayne Pork Maker	12.4	15.0	14.0	4.3	3.5	57.4	4.9	7.0	6.0
1	Wayne Poultry Developer	11.9	16.6	16.0	5.4	3.5	54.1	5.6	7.0	6.4
2	Wayne Turkey Growing Mash	10.3	21.3	20.0	5.6	3.5	48.2	5.7	8.0	8.9
3	Wayne-Amco 20% Dairy Ration	11.5	20.9	20.0	4.1	4.0	49.8	6.8	9.0	6.9
3	Wayne-Amco 16% Dairy Ration	12.1	16.5	16.0	4.4	3.5	52.3	7.6	9.0	7.1

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	American Butter Co.									
2	Dried Greens-Buttermilk	6.6	21.1	20.0	4.8	4.0	34.1	15.0	19.0	18.4
	American Maize-Products Co.									
2	Amaizo Gluten Meal	11.2	44.2	41.0	2.0	1.0	37.5	3.4	4.0	1.7
1	Amaizo Sweetened Gluten Feed	12.5	20.5	18.0	3.6	1.5	49.0	8.6	9.5	5.8
1	Cream of Corn Gluten Feed	8.7	27.5	23.0	3.4	2.0	42.8	7.9	9.5	9.7
	A. P. Ames & Co.									
1	Ames Complete Cycle Ration	12.9	16.7	16.0	4.3	4.0	53.0	5.0	6.0	8.1
1	Ames Egg Mash	11.9	20.0	20.0	4.9	4.0	45.3	5.8	6.0	12.1
1	Ames 20% Milk Maker	11.1	22.4	20.0	4.2	4.0	45.2	8.8	10.0	8.3
1	Ames Starter & Broiler Ration	11.8	18.0	17.5	4.3	4.0	52.2	5.5	7.0	8.2
	Arcady Farms Milling Co.									
1	Arcady Fitting Ration	12.9	16.8	12.0	4.0	3.0	48.8	8.8	10.0	8.7
1	Arcady Growing Mash	10.4	17.7	17.0	5.2	4.0	49.2	8.4	7.0	9.1
3	Arcady Laying Mash	10.6	20.6	20.0	5.0	4.0	45.8	7.6	7.0	10.4
2	Arcady 24% Open Formula Production Ration	11.2	25.1	24.0	4.3	4.0	41.5	8.3	9.0	9.6
3	Arcady 20% Open Formula Production Ration	11.8	21.5	20.0	4.3	4.0	44.9	8.3	9.0	9.2
2	Arcady Sweet 16 Dairy Feed	12.3	17.6	16.0	4.4	3.5	44.5	10.6	12.5	10.6
2	Arcady Sweet Mixing Feed	15.3	10.2	9.0	1.9	1.5	51.7	8.9	12.0	12.0
1	Arcady Wonderlas 26% for Poultry	13.7	28.0	26.0	4.8	4.0	39.4	4.7	7.0	9.4
1	Beets-Oats Horse & Mule Feed	16.3	9.1	9.0	3.0	2.5	60.3	6.7	11.0	4.6
1	Wonderfat Pellets	9.2	15.2	15.0	8.4	5.0	55.8	5.6	7.0	5.8
1	Wonderfat Station Feed	10.9	14.9	15.0	5.3	5.0	57.4	6.4	7.0	5.1
	Archer-Daniels-Midland Co.									
1	32 Per Cent Protein Old Process Linseed Meal	10.0	32.6	32.0	5.8	4.5	38.2	8.0	9.0	5.4
	Ashcraft-Wilkinson Co.									
7	Cow-Eta Brand 43% Protein Cottonseed Meal	8.4	44.0	43.0	8.3	5.25	25.5	7.6	12.0	6.2
1	Cow-Eta Brand 41% Protein Cottonseed Meal	8.7	42.6	41.0	7.1	5.0	26.4	9.2	13.0	6.0
1	Sweet-Suni-Citrus Brand	12.2	7.1	7.5	3.2	5.0	56.5	12.2	15.0	8.8

	E. R. Bacon Grain Co.									
3	Bacon's Gluten Feed	7.8	24.0	25.0	4.1	2.0	54.8	6.3	8.0	3.0
	E. W. Bailey & Co.									
2	Bailey's 20 Special Dairy Ration	10.2	20.5	20.0	4.3	3.5	49.5	8.0	9.0	7.5
2	Bailey's Favorite Dairy Ration	12.3	20.7	20.0	4.5	4.0	50.2	6.1	7.5	6.2
2	Bailey's Pennant Brand Complete Grower	11.4	16.6	14.0	5.2	4.0	53.6	6.0	6.5	7.2
1	Bailey's Pennant Brand Complete Layer	10.7	18.1	15.5	5.0	4.0	53.6	5.2	7.0	7.4
1	Bailey's Pennant Brand Fine Chick Scratch	13.6	12.2	10.0	2.8	2.5	68.8	1.2	3.0	1.4
1	Bailey's Pennant Brand Horse Feed	13.2	11.7	10.75	3.9	3.5	61.9	5.3	6.5	4.0
2	Bailey's Pennant Brand Laying Mash	10.9	20.5	20.0	5.1	4.5	46.3	6.2	7.0	11.0
1	Bailey's Pennant Brand Laying Pellets	11.0	17.3	15.0	4.2	4.0	55.4	4.7	7.0	7.4
1	Bailey's Pennant Brand Stock Feed	11.6	10.2	9.5	4.6	4.0	58.7	8.6	9.5	6.3
	Barber & Bennett, Inc.									
2	Big Ben 24% Dairy Feed	12.0	26.3	24.0	4.8	3.5	42.2	7.4	10.0	7.3
1	Big Ben 20% Dairy Feed	12.3	22.8	20.0	4.8	3.5	44.9	7.6	10.0	7.6
1	Big Ben 16% Dairy Ration	11.3	20.1	16.0	4.5	3.5	48.6	7.5	11.0	8.0
2	Fort Orange Broiler Mash	10.6	20.3	18.0	5.3	4.0	49.4	5.5	7.0	8.9
1	Fort Orange Calf Meal	11.0	19.7	19.0	3.8	4.0	57.7	3.4	3.5	4.4
1	Fort Orange Chick Scratch	11.8	11.7	9.0	3.3	2.0	70.7	1.0	4.0	1.5
1	Fort Orange 32% Dairy Feed	11.5	35.0	32.0	4.3	4.0	35.2	6.5	8.5	7.5
1	Fort Orange 24% Dairy Feed	11.7	24.7	24.0	4.5	4.0	45.1	7.0	8.5	7.0
2	Fort Orange 20% Dairy Feed	11.5	22.5	20.0	4.4	4.0	46.8	7.8	8.5	7.0
2	Fort Orange 12% Fitting and Calf Grain Ration	13.2	13.5	12.0	4.0	3.5	57.0	6.1	8.0	6.2
3	Fort Orange Golden Test Ration	12.1	20.6	18.0	4.3	4.5	49.8	7.3	8.5	5.9
3	Fort Orange Growing Mash	11.2	19.5	17.5	4.4	4.0	52.2	5.2	6.5	7.5
2	Fort Orange Horse Feed	13.2	12.2	9.0	4.4	3.0	60.8	6.1	10.0	3.3
2	Fort Orange Laying Mash	10.7	21.7	19.0	5.0	4.0	47.5	5.4	7.0	9.7
2	Fort Orange Pig and Hog Feed	12.0	15.8	15.0	4.2	3.5	57.4	5.3	6.5	5.3
1	Fort Orange Succulent Mixture	14.2	12.4	9.0	2.6	1.0	52.8	11.8	15.0	6.2
	Beacon Milling Co., Inc.									
2	Auburn Dairy Feed	12.5	21.0	20.0	4.9	3.75	47.0	6.7	10.0	7.9
1	Beacon Sweet "24"	11.3	25.4	24.0	4.6	4.0	44.4	7.4	9.0	6.9
2	Beacon Sweet "20"	11.9	21.1	20.0	4.7	4.0	49.5	6.3	9.0	6.5
1	Beacon "16"	14.4	16.6	16.0	4.3	4.25	52.4	6.6	9.0	5.7
1	Beacon Battery Growing Ration (1940 registration)	9.8	16.5	14.0	5.4	4.0	54.9	6.5	7.5	6.9
1	Beacon Battery Growing Ration	11.1	16.2	14.0	5.1	4.0	53.2	7.0	7.75	7.4
2	Beacon Battery Laying Ration	10.7	16.7	16.0	5.0	4.0	53.2	6.0	7.75	8.4
2	Beacon Breeders Mash	10.6	20.3	20.0	5.8	4.0	47.8	5.9	7.5	9.6
2	Beacon Broiler Feed	10.1	21.5	18.5	5.5	4.0	50.7	4.8	7.0	7.4
1	Beacon C-C Pellets (1940 registration)	9.1	18.2	18.0	6.6	1.0	57.0	3.6	5.0	5.5
1	Beacon C-C Pellets	9.4	18.9	18.0	6.2	5.0	55.8	3.7	5.0	6.0
3	Beacon Calf Grain	14.2	15.3	14.0	4.6	4.0	52.1	7.9	10.0	5.9

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Beacon Milling Co., Inc.—Concluded									
2	Beacon Calf Pellets	10.5	23.4	24.0	3.9	3.0	54.3	2.6	4.0	5.3
3	Beacon's Cayuga Horse Feed	13.2	10.9	10.0	3.2	2.5	62.9	5.8	9.0	4.0
2	Beacon Complete Starting Ration (1940 registration)	10.9	19.5	17.5	5.5	4.0	50.9	5.0	6.0	8.2
1	Beacon Complete Starting Ration	11.5	20.6	19.0	4.7	4.0	50.7	4.4	7.0	8.1
1	Beacon "22" Egg Mash	10.7	22.7	22.0	6.1	4.5	44.2	5.6	7.5	10.7
1	Beacon Fitting Ration (1940 registration)	13.6	14.7	14.0	4.0	4.0	56.7	6.1	8.0	4.9
1	Beacon Fitting Ration	13.8	15.3	14.0	4.3	3.75	52.6	7.1	8.0	6.9
3	Beacon Fleshing Pellets	11.5	15.8	15.0	4.0	3.5	56.8	6.2	7.5	5.7
1	Beacon "16" Growing Mash	11.2	18.2	16.0	5.1	4.0	49.1	6.1	7.5	10.3
4	Beacon "20" Laying Mash	10.7	20.6	20.0	5.7	4.0	47.4	5.7	7.5	9.9
4	Beacon Test Cow Ration	12.9	19.2	18.0	4.9	4.75	49.8	7.1	9.0	6.1
1	Beacon Turkey Fitting Ration	12.8	11.6	10.0	3.2	3.0	63.0	6.0	9.0	3.4
1	Beacon Turkey Growing Feed	9.7	21.8	20.0	5.7	4.0	48.5	6.3	7.0	8.0
1	Beacon Turkey Starter	9.3	25.5	24.0	6.3	4.0	45.0	4.4	6.0	9.5
2	Be-Co-Lass	14.6	12.0	11.0	2.1	1.0	53.2	11.7	16.0	6.4
2	Cayuga "16"	12.5	17.1	16.0	3.4	3.5	52.3	7.5	10.0	7.2
	Berkshire Coal & Grain Co., Inc.									
2	Berkshire Hills Sweet Dairy Feed	11.5	19.4	20.0	4.4	4.5	50.5	7.8	8.0	6.4
2	Green Mountain Dairy Ration	10.4	23.8	23.0	5.0	5.0	46.3	7.4	10.0	7.1
2	Green Mountain Laying Mash	10.5	19.1	19.0	5.4	4.0	49.3	5.7	8.0	10.0
1	"Gro Fast" Berkshire All Mash Complete Chick Starter and Grower	10.6	16.3	16.0	6.3	4.0	54.4	4.9	5.0	7.5
	Borden Co., Special Products Div.									
1	Flaydry	7.2	28.0	24.0	1.9	0.5	44.1	2.3	4.25	16.5
	Borden Grain Co.									
2	Borden's Dairy Feed	11.5	22.7	22.0	4.5	4.5	48.3	5.8	9.0	7.2
2	Borden's Laying Mash	11.3	20.7	19.0	4.6	4.5	47.8	6.1	7.0	9.5
2	Borden's Starter and Growing Feed	11.0	18.1	17.0	4.8	4.0	50.1	6.3	6.0	9.7
	Bradley & Baker									
2	Prime 41% Cottonseed Meal	8.7	42.8	41.0	8.1	5.0	26.4	8.0	11.0	6.0

	George B. Brown Corporation									
1	Brown's Dairy Feed	10.7	21.8	20.0	4.5	4.0	47.0	10.0	12.0	6.0
1	Brown's Egg Mash	11.2	17.7	18.0	4.8	5.0	48.6	7.2	10.0	10.5
	A. B. Caple Co.									
1	20% Capex Dehydrated Alfalfa Leaf Meal	6.9	20.5	20.0	3.2	2.0	33.8	19.8	18.0	15.8
	Central Soya Co., Inc.									
2	Central Soybean Oil Meal	10.1	45.0	41.0	5.0	4.0	29.2	5.1	7.0	5.6
	Charles River Feed Stores, Inc.									
1	C. R. F. Poultry Mash	12.3	20.7	18.0	6.1	5.0	46.7	5.4	5.5	8.8
	S. J. Cherry & Sons, Ltd.									
2	Wheat Bran	13.5	16.1	14.0	5.0	3.5	49.1	10.6	11.5	5.7
2	Wheat Shorts	14.4	16.8	15.0	5.8	5.0	52.9	6.2	8.0	3.9
	Clinton Co.									
1	Clinton Sweetened Corn Gluten Feed	11.7	26.3	18.0	3.4	1.5	46.1	5.2	8.5	7.3
1	Clinton Corn Gluten Meal	9.3	43.2	41.0	2.4	1.0	39.8	3.8	6.0	1.5
	Coatsworth & Cooper									
2	"C & C" Wheat Shorts	13.1	16.7	16.0	5.7	5.0	53.0	7.2	8.0	4.3
	Coles Feed & Grain Co.									
2	Fortune Producer Mash	11.4	20.2	20.0	4.9	4.0	48.3	6.1	5.0	9.1
	Colfax Packing Co.									
3	Colpak 50% Meat and Bone Scrap[1]	4.8	52.0	50.0	9.5	10.0	—	—	—	32.3
	Commander Larabee Milling Co.									
1	Sunfed Wheat Standard Middlings with Ground Screenings Mill Run	12.4	17.5	15.0	5.3	4.0	50.6	9.1	9.5	5.1
	Commercial Milling Co.									
2	Henkel's Extra Fancy Como Wheat Middlings with Ground Screenings Mill Run	13.2	17.8	14.0	5.2	3.5	52.7	6.5	7.5	4.6
3	Henkel's Extra Fancy Pure Spring Wheat Bran	13.6	17.1	16.0	4.7	3.0	49.5	9.0	12.0	6.1
2	Henkel's Extra Fancy Flour Wheat Middlings with Ground Screenings Mill Run	11.9	15.2	13.0	2.9	2.5	65.1	2.2	3.0	2.7
	Community Feed Stores									
1	Community Bulky Special	11.1	8.8	9.0	2.6	2.75	49.0	21.4	21.5	7.1
1	Community-20 Dairy Ration	11.2	20.8	20.0	5.5	4.5	49.0	7.2	9.0	6.3

[1]Phosphoric acid 12.69

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Community Feed Stores—Concluded									
2	Community Laying Mash	13.1	19.8	20.0	5.4	4.5	45.4	5.8	7.0	10.5
2	Hilltop-20 Dairy Ration	10.2	20.4	20.0	4.8	4.0	46.8	11.0	12.0	6.8
1	Thorobred Horse Feed	13.8	11.7	10.5	3.7	3.5	61.7	5.4	8.0	3.7
	Consolidated Rendering Co.									
1	Corenco Cod and Haddock Meal[2]	8.6	63.5	62.0	6.0	2.0	—	—	—	23.0
2	Corenco 55% Meat Scrap[3]	5.7	55.7	55.0	9.4	6.0	—	—	—	27.0
1	Corenco 50% Meat & Bone Scrap[4]	6.6	52.6	50.0	8.6	6.0	—	—	—	30.4
1	Corenco 45% Meat & Bone Scrap[5]	5.9	47.2	45.0	8.7	6.0	—	—	—	37.5
	Continental Grain Co.									
1	Product of Brazil Cottonseed Meal	7.8	42.0	42.0	7.2	7.0	26.4	10.2	10.0	6.4
	Copeland Flour Mills, Ltd.									
1	Copeland's "Dandy Wheat Bran"	14.7	17.0	17.0	4.9	3.5	49.2	9.1	11.5	5.1
1	Copeland's "Dandy Wheat Shorts"	13.5	18.1	18.0	5.7	5.0	52.8	6.0	8.0	3.9
	Corn Products Refining Co.									
2	Buffalo Corn Gluten Feed	10.4	24.2	23.0	2.3	2.0	48.9	7.9	8.5	6.3
2	Buffalo Corn Gluten Feed (Sweetened)	11.9	20.5	18.0	1.9	1.5	53.7	6.8	8.5	5.2
3	Diamond Corn Gluten Meal	9.7	44.5	41.0	2.1	1.0	39.3	2.3	4.0	2.1
	Nicolas Courcy Grain Co.									
2	Courcy Dairy Feed	12.5	22.0	20.0	4.4	3.5	48.3	6.4	7.5	6.4
2	Courcy Eastern Milk Laying Mash	11.0	17.2	17.0	4.9	4.5	51.1	5.9	6.5	9.9
2	Courcy Growing Feed	10.4	15.2	15.5	4.5	4.0	52.4	5.9	7.0	11.6
2	Courcy Heavy Mixed Feed	11.8	16.4	16.0	4.8	4.0	54.3	6.3	7.5	6.4
	Cover Grain & Feed Co.									
1	C & P Complete Egg Ration	12.0	17.1	15.0	4.2	4.0	53.5	5.7	6.0	7.5
2	C & P Grade A Laying Mash	10.6	21.4	20.0	4.7	4.0	46.3	5.2	7.0	11.8
2	C & P Growing Mash	10.4	19.5	17.0	4.7	4.0	48.0	5.7	7.0	11.7
2	C & P Own 20 Dairy Ration	10.0	23.1	20.0	4.8	4.0	46.9	7.5	9.0	7.7
2	C & P Starter & Broiler Ration	10.9	18.6	17.0	4.3	4.0	51.5	5.0	6.0	9.7
2	C & P Stock Feed	10.3	9.5	8.5	4.3	3.5	60.7	8.1	10.0	7.1

	Chas. M. Cox Co.									
5	Energy 20 Dairy Ration	12.1	22.6	20.0	3.7	3.5	47.5	6.7	8.0	7.4
2	Hygrade 12 Fitting Ration	13.2	13.8	12.0	4.5	4.0	55.4	6.5	8.0	6.6
2	Hygrade Horse Feed	12.2	11.0	9.5	3.6	3.25	63.5	5.5	9.0	4.2
2	Hygrade 24 Milk Ration	13.1	25.8	24.0	4.5	4.0	42.5	6.9	8.5	7.2
1	Utility 20 Dairy Ration	12.3	21.6	20.0	4.3	3.5	46.1	8.1	12.0	7.6
3	Utility Growing Ration	11.6	17.3	15.0	4.1	4.0	54.0	5.8	7.0	7.2
3	Utility Laying Ration	10.9	18.5	18.0	4.3	4.0	52.0	6.4	7.0	7.9
1	Wirthmore Breeder Pellets	10.3	17.1	15.0	5.3	4.0	57.4	4.7	6.0	5.2
1	Wirthmore Complete Chick Starter and Broiler Ration	11.1	19.2	17.5	4.3	4.0	53.4	5.7	7.0	6.3
1	Wirthmore Complete Rabbit Ration	11.1	13.5	14.0	3.7	3.0	54.5	11.7	15.0	5.5
3	Wirthmore 20 Dairy Ration	12.7	21.1	20.0	5.2	4.5	48.8	6.7	8.0	5.5
2	Wirthmore 16 Dairy Ration	13.1	17.0	16.0	4.7	4.0	52.9	6.3	8.0	6.0
2	Wirthmore Finishing Pellets	12.1	15.6	15.0	4.1	4.0	58.2	4.8	6.5	5.2
3	Wirthmore Flour Middlings	11.9	16.6	15.0	4.8	4.0	57.0	5.9	6.0	3.8
1	Wirthmore Fodder Greens	13.0	13.1	10.0	2.7	3.0	51.9	10.1	15.0	9.2
2	Wirthmore Growing Pellets	11.5	15.0	14.0	4.5	3.75	59.7	4.6	6.0	4.7
2	Wirthmore Horse Feed	12.0	11.0	9.8	3.9	3.25	63.6	6.0	9.0	3.5
1	Wirthmore Record Ration	13.4	22.0	20.0	4.9	4.25	46.6	7.2	8.5	5.9
1	Wirthmore Special Broiler Feed	11.8	21.1	20.0	4.4	4.0	50.2	5.4	6.5	7.1
2	Wirthmore Special Egg Mash	11.8	20.3	20.0	4.7	4.0	47.9	5.7	7.5	9.6
4	Wirthmore Stock Feed	11.6	10.7	9.0	4.4	4.0	58.4	9.0	9.5	5.9
1	Wirthmore Turkey Growing Ration	10.4	23.0	20.0	4.1	4.0	49.2	6.1	7.0	7.2
1	Wirthmore Wheat Feed	12.9	17.1	15.0	4.6	3.75	54.0	7.1	8.0	4.3
	Curley Grain & Fuel Co.									
1	Crystal 20% Dairy Ration	10.5	20.8	20.0	4.3	4.0	49.3	7.7	12.0	7.4
1	Crystal Egg Mash	10.9	20.2	18.0	4.9	4.0	49.8	4.7	6.0	9.5
1	Crystal Growing Mash	11.8	18.0	16.0	4.6	5.0	54.3	4.4	5.0	6.9
1	Crystal Horse Feed	12.9	12.0	11.0	3.6	3.0	62.0	5.9	10.0	3.6
1	Crystal Starting Food for Broilers	10.2	18.9	16.0	4.6	4.0	55.5	3.3	4.5	7.5
	Dailey Mills, Inc.									
6	Dailey's Egg Producer Mash	11.4	18.0	19.0	4.9	4.0	50.2	6.5	7.0	9.0
4	Dailey's Fitting Ration	13.7	14.9	14.0	3.9	4.0	54.6	6.1	7.0	6.8
5	Dailey's 20% Milk Producer	12.4	21.4	20.0	3.5	4.0	45.7	8.5	10.0	8.5
2	Dailey's Special Growing Mash	10.5	19.0	17.0	4.7	4.0	50.1	6.9	7.0	8.8
1	Dailey's Special 20% Dairy Ration	13.6	18.4	20.0	4.1	4.0	48.3	9.2	12.0	6.4
3	Dailey's "Super" 20% Dairy Ration	12.1	22.5	20 0	3.8	4.0	47.1	7.1	8.0	7.4
	Dairymen's League Co-Operative Association, Inc.									
1	Dairylea Choice Feed Grade Dried Skim Milk[6]	6.9	33.4	33.0	0.8	0.5	—	—	—	7.9
	Decatur Soy Products Co.									
2	Illini Brand 41% Protein Soybean Oil Meal	9.8	43.6	41.0	5.3	4.5	30.8	4.8	7.0	5.7

[2]Phosphoric acid 9.47 [3]Phosphoric acid 7.72 [4]Phosphoric acid 12.05 [5]Phosphoric acid 14.90 [6]Lactose 51.0

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Dehydrating Process Co.									
1	Protine Brand White Fish Meal[7]	3.5	69.6	60.0	5.0	4.0	—	—	—	22.9
	Delaware Mills Inc.									
1	Delaware Complete Egg Mash	10.6	18.1	15.0	4.7	4.0	53.3	6.1	7.0	7.2
1	Delaware 16% Growing Mash	13.0	18.5	16.0	4.8	4.0	50.6	6.0	7.0	7.1
1	Delaware Growing Mash (1940 registration)	10.4	17.6	17.0	4.8	4.0	54.2	6.2	6.5	6.8
1	Delaware 85% Horse Feed	11.5	10.1	9.0	3.7	3.0	63.5	7.5	9.0	3.7
1	Delaware 19% Laying Mash	13.1	18.4	19.0	7.9	4.0	46.9	6.3	8.0	7.4
1	Delaware Starter and Broiler Ration	10.4	18.4	18.0	4.8	4.5	53.1	5.4	6.0	7.9
1	Delaware Starter Grower Layer	9.8	18.1	16.0	4.9	4.0	52.8	6.3	6.0	8.1
1	Delaware Stock Feed	9.3	11.0	9.0	3.5	3.0	58.0	11.5	12.0	6.7
2	Delaware Sweet 20% Dairy Feed	12.2	20.6	20.0	5.0	4.5	46.3	7.5	10.0	8.4
1	Delaware Sweet 16 Dairy Feed	11.1	20.1	16.0	4.2	3.5	49.4	7.9	12.0	7.3
1	Delco 20% Dairy Feed	10.6	21.7	20.0	4.5	4.0	48.0	8.3	11.0	6.9
1	Indian Growing Mash	10.5	17.6	15.0	5.4	4.0	52.6	6.9	7.0	7.0
5	Indian Laying Mash	11.2	18.4	18.0	4.3	4.0	53.0	5.8	8.0	7.3
4	Indian Sweet 20% Dairy Feed	11.6	19.9	20.0	4.2	3.5	47.7	8.2	12.0	8.4
	Denver Alfalfa Milling & Products Co.									
1	Jack Rabbit Dehydrated Alfalfa Leaf Meal	5.9	22.5	20.0	3.3	2.5	42.3	15.0	18.0	11.0
	Deutsch & Sickert Co.									
1	Brewers Dried Grains	7.1	28.1	24.0	6.9	5.0	41.6	13.6	18.0	2.7
	Frank Diauto									
1	Diauto's Complete Broiler Ration	10.3	19.1	18.0	5.9	5.0	51.9	5.1	6.0	7.7
1	Diauto's Complete Laying Ration	11.0	16.3	15.0	4.9	4.0	56.8	4.2	6.0	6.8
1	Diauto's Dairy Ration	11.6	17.0	17.0	4.2	3.92	55.2	6.9	7.74	5.1
1	Diauto's Fancy Chick Growing Mash	11.2	18.1	16.0	4.9	4.0	52.4	5.8	5.0	7.6
1	Diauto's Special Egg Mash	10.2	18.5	20.0	5.2	4.0	53.1	5.7	7.0	7.3
	F. Diehl & Son									
2	Diehl's Dairy Feed	10.8	21.5	18.0	4.8	3.0	47.1	8.2	14.0	7.6
2	Diehl's Dry Mash	10.5	24.3	16.0	4.7	3.0	42.6	6.0	12.0	11.9

	Dietrich & Gambrill, Inc.									
1	All Purpose Complete Ration	10.4	17.2	15.0	5.5	4.0	53.3	5.3	7.0	8.3
1	D & G Breeder Mash	11.4	19.2	19.0	5.6	5.0	48.9	5.1	9.0	9.8
1	D & G Broiler Mash	12.1	19.5	18.0	4.7	4.0	52.3	4.2	7.0	7.2
1	D & G Dairy Feed	10.7	19.9	20.0	4.5	4.0	47.7	9.3	12.0	7.9
1	D & G Fleshing Pellets	9.6	16.9	15.0	6.1	3.5	55.7	5.4	6.5	6.3
1	D & G Poultry Conditioning Ration	9.7	16.7	15.0	6.4	6.0	53.1	4.2	6.0	9.9
2	D & G Wheat Mixed Feed	12.4	17.5	15.0	4.3	3.5	54.3	6.7	7.5	4.8
1	Frederick Growing Mash	10.7	18.4	16.0	5.5	4.0	50.4	6.0	8.0	9.0
1	Frederick Laying Mash	10.3	19.8	18.0	5.3	4.0	50.5	5.9	8.0	8.2
1	Gambrill's Chick Starter	10.7	19.3	18.0	4.5	4.0	52.6	4.0	6.0	8.9
1	Gambrill's 16% Dairy	12.5	16.3	16.0	3.5	3.5	49.5	10.1	12.0	8.1
2	Gambrill's Growing Mash	10.8	19.1	18.0	5.9	4.0	49.2	5.4	7.0	9.6
2	Gambrill's Laying Mash	9.4	21.3	20.0	5.4	4.0	46.7	6.0	7.0	11.2
3	Pen Mar 20% Dairy Feed	12.7	20.1	20.0	4.4	4.0	48.1	7.7	10.0	7.0
	J. L. Dunnell & Son									
2	Dunnell's Sweetened Dairy Ration	10.7	19.4	18.0	4.4	4.0	48.0	10.1	13.0	7.4
2	Excel 20 per cent Dairy Ration	10.4	20.7	20.0	4.6	4.5	49.1	7.9	10.0	7.3
2	Excel Mash	11.1	22.6	19.0	5.4	5.0	45.7	4.6	6.0	10.6
2	Full Value Mixed Feed	11.4	17.5	15.0	4.6	5.0	52.8	7.5	6.0	6.2
2	Horse Feed	12.5	11.8	11.0	4.4	3.5	60.7	7.0	7.0	3.6
	Eagle Roller Mill Co.									
1	Eagle Wheat Bran with Screenings	13.5	17.5	14.0	5.5	4.0	48.6	9.2	12.0	5.7
1	Eagle Wheat Mixed Feed with Screenings	13.2	17.4	15.0	4.9	4.0	55.1	4.7	9.5	4.7
	East Bridgewater Farmers' Exchange									
1	Exchange Dairy Feed	11.9	21.0	20.0	4.0	4.0	50.9	7.4	9.0	4.8
1	Exchange Growing Feed	11.2	20.1	16.0	4.5	4.0	51.3	5.5	7.0	7.4
1	Exchange Mash Feed	11.1	18.9	18.0	4.5	4.0	52.0	4.9	6.0	8.6
	Eastern Grain Co.									
3	Eastern 24% Dairy Ration Sweetened	11.3	25.6	24.0	4.7	4.0	43.3	7.5	9.0	7.6
2	Eastern 20% Dairy Ration Sweetened	12.8	22.7	20.0	4.2	4.0	46.6	7.2	9.0	6.5
	Eastern States Farmers' Exchange									
2	Eastern States All-Mash Breeder	11.1	16.9	15.5	5.1	4.0	54.7	5.2	5.5	7.0
2	Eastern States All-Mash Developer	11.0	16.6	14.5	4.6	3.5	56.0	5.0	6.0	6.8
2	Eastern States All-Mash Egg	11.3	16.6	15.5	4.9	4.0	54.9	5.3	6.0	7.0
2	Eastern States Breeder Mash	10.3	21.3	20.0	5.4	4.0	46.9	5.5	6.0	10.6
3	Eastern States Developer	10.5	19.9	18.5	4.8	3.75	49.9	5.9	6.5	9.0
1	Eastern States Duck Breeder	9.4	25.2	17.0	5.4	4.0	43.7	5.4	5.5	10.9
1	Eastern States Duck Start & Grow	10.3	16.5	16.0	5.0	4.0	56.4	4.8	6.0	7.0
1	Eastern States Egg Mash	10.2	21.1	20.0	5.5	4.0	48.2	5.2	6.5	9.8

[7]Phosphoric acid 8.9

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Eastern States Farmers' Exchange—Concluded									
2	Eastern States Fattener	10.6	18.0	14.5	4.8	4.0	58.0	5.0	5.0	3.6
2	Eastern States Fitting Ration	13.1	14.7	14.0	4.2	3.5	54.8	7.0	8.5	6.2
2	Eastern States Flushing Mash	9.6	20.8	18.5	3.7	3.0	53.8	3.7	4.5	8.4
3	Eastern States Fulpail Dairy Ration	11.9	20.8	20.0	4.9	4.0	49.6	6.2	8.5	6.6
4	Eastern States Highland 20 Dairy Ration	11.5	20.1	20.0	4.4	4.0	48.7	8.5	11.5	6.8
2	Eastern States Highland 16 Dairy Ration	12.0	16.6	16.0	4.3	4.0	51.7	8.9	11.0	6.5
2	Eastern States Hog Meal	12.0	15.7	15.0	4.1	3.5	56.6	4.0	5.0	7.6
3	Eastern States Horse Feed	12.9	11.5	10.5	4.3	3.5	61.8	5.5	7.0	4.0
2	Eastern States Milkmore Dairy Ration	12.1	24.4	24.0	5.1	4.5	44.4	6.8	8.5	7.2
2	Eastern States Sixteen Dairy Ration	12.9	17.4	16.0	4.5	4.0	52.9	6.1	8.0	6.2
1	Eastern States Starting & Broiler Ration	10.6	18.9	18.5	5.2	4.0	54.6	4.2	5.0	6.5
1	Eastern States Succulence	12.4	11.4	10.0	2.4	1.5	50.4	15.6	18.0	7.8
1	Eastern States Turkey-Fat	10.5	19.0	20.0	4.6	4.0	54.3	4.8	6.0	6.8
1	Eastern States Turkey-Grow	10.3	20.3	20.0	4.8	4.0	52.8	4.6	5.5	7.2
1	Eastern States Turkey-Start	9.4	27.8	25.0	5.3	4.5	45.6	3.9	5.0	8.0
	M. W. Ellis									
1	The Ellis Dairy Feed	12.2	24.4	22.0	4.7	4.0	47.4	7.2	9.0	4.1
1	The Ellis Special Dairy Feed	12.6	19.2	18.0	4.1	4.0	49.4	9.9	10.0	4.8
2	The Ellis Poultry Mash	11.8	19.6	20.0	5.0	4.0	46.5	7.0	8.0	10.1
	Elmore Milling Co., Inc.									
1	Elmore Chixsaver (1940 registration)	10.1	19.7	18.0	5.3	4.0	49.6	5.6	6.0	9.7
1	Elmore Chixsaver	12.2	19.3	18.0	5.0	4.0	50.8	5.4	7.0	7.3
1	Elmore Complete Layer and Breeder	13.0	17.9	16.0	4.9	4.0	53.8	4.4	6.0	6.0
2	Elmore Complete Starter-Broiler (1940 registration)	11.6	18.8	18.0	5.1	4.0	50.6	5.5	6.0	8.4
1	Elmore Complete Starter-Broiler	12.7	19.0	18.0	4.7	4.0	50.1	5.4	7.0	8.1
2	Elmore Egg Mash	10.9	21.3	20.0	5.2	4.0	47.2	5.7	8.0	9.7
1	Elmore Fleshing Pellets	11.7	17.8	15.0	4.5	5.0	57.9	4.4	6.0	3.7
1	Elmore Goat Ration	10.9	19.5	16.0	5.0	4.0	51.9	7.2	10.0	5.5
2	Elmore Growing Mash	11.3	18.8	17.0	5.4	4.0	50.5	6.4	8.0	7.6
2	Elmore's Hog Ration	11.7	17.7	15.0	5.7	5.0	54.4	5.0	6.0	5.5
2	Elmore Improved Calf Meal	11.2	21.6	20.0	4.2	4.0	52.9	3.1	8.0	7.0
2	Elmore M. A. C. Laying Mash	12.7	18.6	18.0	4.8	5.0	50.5	6.0	7.0	7.4

4	Elmore Milk Grains "Twenty"	11.1	21.1	20.0	5.6	5.5	48.0	7.7	10.0	6.5
1	Elmore Stock Feed	11.6	10.7	10.0	4.9	3.0	60.3	8.9	12.0	3.6
2	Elmore's Sweet Digesto Dairy Feed	11.1	21.0	16.0	3.7	4.0	47.8	9.1	12.0	7.3
1	Elmore Turkey Finisher (Fattener)	10.0	17.5	17.0	5.1	4.0	51.4	6.3	8.0	9.7
1	Elmore Turkey Growing Mash	9.3	21.4	20.0	5.1	3.5	50.5	6.1	8.0	7.6
2	Elmore Turkey Starting Mash	9.7	24.7	24.0	5.9	4.0	43.3	5.3	6.0	11.1
2	Granger 20% Dairy Ration	12.6	23.5	20.0	3.4	4.0	45.1	8.7	11.0	6.7
	John W. Eshelman & Sons									
1	Eshelman Choice Mixed Wheat Feed with Screenings Mill Run	11.4	17.5	14.5	4.8	4.0	51.9	8.9	8.5	5.5
4	Eshelman Conestoga 20 Dairy Feed	11.3	21.2	20.0	4.2	4.0	45.0	9.5	11.0	8.8
2	Eshelman Lancaster 60 Horse Feed	13.2	9.9	9.0	3.7	2.5	60.4	9.0	11.0	3.8
1	Eshelman Pennsy Laying Mash	10.8	21.1	18.0	5.1	4.5	47.6	7.2	8.0	8.2
1	Eshelman S-O-S	10.4	12.1	11.0	2.8	2.0	50.7	15.9	15.0	8.1
	Excelsior Milling Co.									
1	Camel Wheat Mixed Feed	11.2	15.8	15.0	4.2	4.0	55.7	7.5	8.5	5.6
	Geo. A. Fair									
2	Fair Square Dairy Feed	12.8	20.1	20.0	4.6	4.5	49.2	7.2	8.5	6.1
2	Fair Square Growing Mash	12.3	18.3	18.0	4.7	4.0	51.0	5.4	6.5	8.3
2	Fair Square Laying Mash	12.3	18.2	17.0	5.0	4.0	50.6	5.1	6.5	8.8
2	Fair Square Starter and Broiler Mash	12.0	18.0	18.0	4.6	4.0	52.4	5.2	5.0	7.8
	Farm Service Division, General Mills, Inc.									
2	C Dairy Ration	11.3	22.9	21.0	4.6	4.0	46.0	8.2	9.0	7.0
2	C Growing Mash	10.5	18.8	18.0	5.4	4.0	50.8	5.5	7.0	9.0
1	C Laying Mash	10.8	21.5	19.0	5.9	4.5	47.2	5.6	8.0	9.0
1	Diamond A Dairy Ration	11.5	22.7	24.0	5.7	4.0	47.6	6.8	8.0	5.7
2	Diamond C Dairy Feed	10.7	22.8	21.0	4.9	4.0	47.8	7.0	10.0	6.8
2	Farm Service All Mash	10.8	19.9	16.0	5.0	4.5	51.1	5.4	7.0	7.8
1	Farm Service 20% Dairy Feed	11.0	22.1	20.0	4.6	3.5	49.0	7.5	10.0	5.8
1	Farm Service 14% Fitting Ration	13.1	14.9	14.0	4.5	4.0	54.0	7.4	10.0	6.1
2	Farm Service Fleshing Pellets	10.3	17.4	15.0	5.2	3.75	53.6	6.5	7.0	7.0
3	Farm Service Horse Feed	12.3	10.7	8.0	3.8	2.0	62.8	7.2	9.0	3.2
2	Farm Service Laying Mash (1940 registration)	11.0	22.2	20.0	5.4	5.0	45.1	5.4	7.0	10.9
2	Farm Service Laying Mash	12.1	20.5	20.0	5.0	3.5	47.0	5.7	7.5	9.7
2	Farm Service Stock Feed	11.1	9.8	9.0	4.0	3.0	61.4	8.9	12.0	4.8
3	N E C Laying Mash	11.4	18.4	16.0	4.8	3.75	50.8	6.2	8.0	8.4
1	Service Mash	12.8	22.1	18.0	4.8	4.0	45.9	5.6	9.0	8.8
1	Service Ration	12.8	22.9	21.0	4.2	4.0	47.7	7.1	9.0	5.3
	Farmers Feed Co., Buffalo, N. Y.									
2	Dried Brewers Grains	10.2	25.1	24.0	6.6	6.0	41.6	13.3	17.0	3.2

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Fernando Valley Milling & Supply Co.									
2	Alfalfa Leaf Meal Ideal Poultry Greens	9.0	20.8	20.0	2.7	2.5	37.6	18.2	18.0	11.7
	Ferneau Grain Co.									
2	F Corn Distillers Dried Grains	7.0	28.6	28.0	9.9	9.0	40.7	11.8	14.0	2.0
	First National Stores, Inc.									
1	Henfield Egg Mash	11.3	21.1	20.0	4.3	4.0	46.4	6.4	7.0	10.5
	Flory Milling Co., Inc.									
2	Flor-Eta Complete Laying Mash	13.2	17.0	15.0	4.9	4.0	51.0	5.9	7.0	8.0
1	Flor-Eta Fleshing Mash	11.2	15.3	15.0	4.5	4.0	56.4	6.8	7.0	5.8
1	Flor-Eta Growing Mash	11.3	14.8	15.0	4.3	4.0	58.7	5.4	7.0	5.5
1	Flor-Eta Laying Mash	11.0	14.9	15.0	5.3	4.0	56.8	6.1	7.0	5.9
1	Flory Chick Starter	10.7	19.0	17.0	5.4	4.5	52.5	5.2	6.0	7.2
2	Flory Chick Starter and Broiler Ration	10.0	16.6	16.0	5.4	4.0	55.1	6.2	7.0	6.7
1	Flory 24% Dairy Feed	11.1	24.6	24.0	4.0	4.0	45.9	7.1	10.0	7.3
2	Flory 20% Special Dairy Feed	12.0	24.0	20.0	4.0	4.0	44.8	9.2	11.0	6.0
1	Flory Starter Mash	13.2	19.7	18.0	4.8	4.0	49.8	5.1	7.0	7.4
1	Golden Egg Growing Mash (1940 registration)	10.4	17.6	16.0	5.5	4.0	50.6	7.0	7.0	8.9
1	Golden Egg Growing Mash	13.2	16.3	16.0	4.1	4.0	50.8	6.5	8.0	9.1
1	Golden Egg Laying Mash (1940 registration)	9.9	21.0	20.0	4.9	4.0	49.4	6.7	7.0	8.1
2	Golden Egg Laying Mash	10.6	20.9	20.0	4.8	4.0	45.1	6.4	8.0	12.2
1	Golden Egg Starter & Broiler	13.3	16.9	17.0	4.7	4.0	51.7	5.9	7.5	7.5
1	National 24% Dairy Feed	11.6	26.2	24.0	4.7	4.0	42.0	9.4	10.0	6.1
2	Record Dairy Feed	11.6	23.5	20.0	4.4	4.0	45.6	8.4	9.0	6.5
3	Sunray Laying Mash	10.1	20.4	20.0	4.5	4.0	47.2	7.3	9.0	10.5
	Ford Motor Co.									
1	44% Protein Soy Bean Oil Meal	9.9	48.3	44.0	3.7	0.5	28.5	4.2	7.0	5.4
	Fred A. Fountain									
1	Fountain's Breeder Mash	12.2	20.4	18.0	4.6	4.5	47.6	5.7	6.0	9.5
2	Fountain's Growing Mash	11.9	18.1	16.0	4.8	4.0	51.7	5.7	7.0	7.8
2	Fountain's Laying Mash	11.8	20.1	18.0	5.2	4.0	48.3	5.1	7.0	9.5
2	Fountain's Starting and Broiler Ration	11.2	20.0	17.5	5.1	4.0	50.7	4.9	7.0	8.1

	J. B. Garland & Son, Inc.									
1	Garland Chick Scratch Feed	13.7	12.7	10.0	3.0	2.5	67.8	1.4	3.0	1.4
3	Garland 20% Dairy Ration	11.5	23.5	20.0	5.0	4.0	45.6	7.1	10.0	7.3
2	Garland Horse Feed	14.6	10.8	10.0	3.8	3.0	62.4	4.9	9.0	3.5
2	Garland Stock Feed	8.8	9.6	8.5	5.1	4.0	61.0	10.4	12.0	5.1
1	Royal Complete Starter & Grower Ration	10.3	13.8	13.0	5.2	4.0	58.6	5.4	6.0	6.7
1	Royal 20% Dairy Ration	11.6	22.3	20.0	5.6	4.0	45.1	8.5	11.0	6.9
	General Mills, Inc.									
3	Washburn's Gold Medal Hard Wheat Bran and Wheat Screenings	13.0	16.3	14.0	4.5	3.5	50.1	9.6	12.0	6.5
1	Washburn's Gold Medal Hard Wheat Standard Middlings & Wheat Screenings	10.8	16.7	15.0	4.9	4.0	55.8	7.5	9.5	4.3
	W. K. Gilmore & Sons, Inc.									
1	Conference Mash	10.7	19.2	16.0	4.9	4.0	47.3	7.3	6.5	10.6
	Glidden Co.									
1	Glidden Diamond "G" Brand 41% Protein Soybean Oil Meal	10.2	44.7	41.0	4.6	4.0	29.0	6.3	7.0	5.2
1	Glidden 4-Hi Brand 44% Protein Soybean Meal	11.3	44.7	44.0	1.0	0.5	32.6	5.3	7.0	5.1
	Goode Grain Co.									
2	Goode Laying Mash. Mass. Formula (1940 registration)	10.3	18.0	17.0	4.3	4.0	48.9	8.9	7.0	9.6
1	Goode Laying Mash. Mass. Formula	11.6	17.9	17.0	4.1	4.0	50.2	8.4	8.0	7.8
1	Goode Starting & Growing Mash. New England Formula (1940 registration)	9.1	19.2	16.0	4.3	4.0	49.0	7.9	7.0	10.5
1	Goode Starting & Growing Mash. New England Formula	11.5	18.8	16.0	4.4	4.0	48.1	7.3	8.0	9.9
	Gorton-Pew Fisheries Co., Ltd.									
2	Gorton's Cod Liver Meal Blend[8]	7.1	52.1	50.0	20.9	15.0	—	—	—	12.8
2	Gorton's Redfish Meal[9]	5.0	58.6	55.0	7.0	5.0	—	—	—	29.1
	Grand Union Co.									
1	Grand Union 20% Dairy Feed	9.5	20.1	20.0	3.7	3.5	47.7	11.4	12.0	7.6
1	Grand Union Laying Mash	10.9	21.5	20.0	4.5	4.0	48.4	6.5	7.0	8.2
	D. H. Grandin Milling Co.									
3	Grandin's Baby Chick Grains	12.5	11.5	10.0	2.9	2.5	70.3	1.3	5.0	1.5
1	Grandin's Broiler Mash	10.5	21.1	20.0	4.9	4.0	47.2	6.3	8.0	10.0
3	Grandin's 20 Dairy Feed	11.5	21.0	20.0	4.7	4.0	48.3	7.2	10.0	7.3
2	Grandin's 14 Fitting Ration	12.5	15.7	14.0	4.8	4.0	54.5	5.7	9.0	6.8
2	Grandin's Fleshing Pellets	11.7	15.6	15.0	4.3	4.0	55.5	4.9	7.0	8.0

[8]Phosphoric acid 5.2 [9]Phosphoric acid 11.94

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	D. H. Grandin Milling Co.—Concluded									
2	Grandin's Green Feed	15.1	10.9	10.0	1.4	1.0	44.3	21.4	25.0	6.9
1	Grandin's Growing Mash	10.3	16.4	15.0	4.5	4.0	50.6	7.4	8.0	10.8
1	Grandin's Hi-Pro Pellets	11.5	20.7	20.0	4.4	4.0	46.2	6.8	10.0	10.4
2	Grandin's Horse Feed	12.5	11.6	9.5	4.4	3.5	62.1	5.8	11.0	3.6
2	Grandin's Laying Mash	11.0	20.5	20.0	4.2	4.0	45.7	7.1	8.0	11.5
2	Grandin's Milk Maker	10.2	21.7	20.0	5.6	4.5	48.0	8.3	10.0	6.2
2	Grandin's Start-to-Finish Mash	10.4	18.5	16.0	4.5	4.0	50.9	7.4	7.0	8.3
2	Grandin's Stock Feed	9.8	9.9	9.0	5.0	4.0	58.3	10.6	12.0	6.4
1	Money Saver Broiler Mash	12.0	20.4	20.0	4.3	4.0	48.9	6.1	8.0	8.3
4	Money Saver Commercial Egg Mash	10.4	20.6	18.0	4.3	4.0	46.1	7.0	8.0	11.6
	Great Atlantic & Pacific Tea Co.									
2	Daily-Egg Laying Mash Feed	10.8	21.1	20.0	4.4	3.75	47.8	6.3	7.0	9.6
2	Daily-Growth Chick Starter	10.6	18.5	17.0	5.0	4.5	52.6	5.6	4.5	7.7
2	Daily-Growth Developing Feed	11.7	9.8	10.0	3.2	2.5	72.3	1.7	3.5	1.3
2	Daily-Growth Fine Chick Feed	12.0	10.7	10.0	2.8	3.0	71.9	1.3	3.5	1.3
2	Daily-Growth Growing Mash	10.4	18.8	17.5	4.6	3.5	51.9	6.6	6.5	7.7
2	Daily Horse Feed	12.9	10.7	9.5	4.2	3.0	62.4	5.9	10.0	3.9
2	Daily-Milk Dairy Feed 16%	12.3	16.0	16.0	3.7	3.0	48.8	11.0	12.0	8.2
2	Milky-Way Dairy Feed 24%	11.8	25.3	24.0	3.7	2.75	43.9	7.0	9.0	8.3
2	Milky-Way Dairy Feed 20%	11.8	21.6	20.0	3.6	2.75	48.0	7.2	9.0	7.8
	Hales & Hunter Co.									
1	Kingfalfa Horse Feed	11.4	10.9	9.0	4.4	2.5	63.1	6.1	10.0	4.1
4	Red Comb All-Mash	10.6	17.4	15.0	4.6	4.0	54.6	5.2	7.0	7.6
3	Red Comb Balancer	8.8	28.6	26.0	5.2	5.0	38.6	6.0	8.0	12.8
3	Red Comb Batry Fed Layer	9.9	15.5	15.0	4.3	4.0	58.1	4.7	6.0	7.5
1	Red Comb Broiler Mash (1940 registration)	10.2	20.7	18.0	4.0	4.0	53.3	4.6	7.0	7.2
1	Red Comb Broiler Mash	12.8	21.2	18.0	4.0	3.5	50.9	4.6	7.0	6.5
1	Red Comb Chick Starter	10.6	20.2	18.0	4.4	4.0	52.9	5.1	6.0	6.8
2	Red Comb Egg Mash	10.1	19.1	18.0	4.5	4.0	52.9	5.3	7.0	8.1
1	Red Comb Flushing Mash	10.0	12.5	12.0	3.7	3.0	66.1	3.9	5.0	3.8
2	Red Comb Growing Mash	10.4	17.7	16.0	4.9	4.0	54.1	5.8	7.0	7.1
1	Special Red Horn 20% Dairy Feed	11.1	22.6	20.0	4.4	3.5	47.0	7.8	12.0	7.1

	D. Harbeck & Sons									
2	Crusader All Purpose Mash	12.2	19.5	18.0	5.5	3.5	47.3	5.5	7.0	10.0
2	Special 1940 Mash	11.7	18.9	16.0	5.3	4.0	49.3	5.0	6.0	9.8
2	Welcome Dairy Feed	11.0	24.3	20.0	3.8	4.0	46.6	7.6	10.0	6.7
2	Welcome Growing Mash	12.3	16.7	16.0	5.7	4.0	50.9	4.8	7.0	9.6
2	Welcome Laying Mash	12.2	18.3	17.0	6.1	4.0	47.4	5.5	7.0	10.5
2	Welcome Starter and Broiler Ration	10.8	18.7	18.0	5.3	4.0	52.6	4.5	7.0	8.1
2	Welcome Turkey Growing Mash	11.2	19.0	20.0	5.4	4.0	50.0	4.8	7.0	9.6
	Hecker Products Corp. Flour and Cereal Division									
1	Oat Mill Feed	9.4	6.1	6.0	2.0	1.5	48.7	26.9	28.0	6.9
	D. B. Hodgkin's Sons									
1	Hodgkins' Dairy Ration	12.5	21.5	20.0	4.5	4.0	46.4	7.5	10.0	7.6
1	Hodgkins' Growing Mash	11.7	18.5	17.0	5.1	3.5	49.7	6.4	10.0	8.6
1	Hodgkins' Poultry Mash	11.1	20.5	18.0	5.0	5.0	47.8	6.3	8.0	9.3
	Horvitz Grain Co.									
2	Mak-M-Lay Laying Mash	10.9	19.2	20.0	5.2	5.0	50.6	7.2	9.0	6.9
2	Wantmore Dairy Ration	10.8	24.4	20.0	5.1	4.0	45.5	7.5	10.0	6.7
2	Wantmore Dairy with Beet Pulp	11.0	22.5	20.0	4.5	4.0	47.2	8.1	10.0	6.7
2	Wantmore 24% Sweetened Special Dairy	10.9	25.5	24.0	4.8	4.0	43.1	8.8	13.0	6.9
2	Wantmore 20% Sweetened Special Dairy	11.4	21.0	20.0	4.8	4.0	46.8	8.6	13.0	7.4
	Humphreys-Godwin Co.									
3	Bull Brand Prime 43% Protein Cottonseed Meal	8.8	42.7	43.0	6.9	5.0	26.8	8.7	10.0	6.1
3	Dixie Brand Prime 41% Protein Cottonseed Meal	8.2	41.1	41.0	6.2	5.0	28.8	9.0	12.0	6.7
	Illinois Cereal Mills, Inc.									
1	Hominy Feed	11.7	10.7	10.0	6.3	6.0	65.1	3.9	5.0	2.3
	Independent Tallow Co.									
2	Eggaday Brand Meat and Bone Scrap[10]	7.5	50.8	50.0	12.2	6.0	—	—	—	23.8
	International Milling Co.									
1	Blackhawk Pure Wheat Bran	14.0	17.5	15.0	4.6	3.2	49.3	8.5	12.0	6.1
	Ismert-Hincke Milling Co.									
1	Oracle Pure Wheat Bran	13.0	14.9	16.0	4.3	3.5	51.6	10.1	11.0	6.1
	Jaquith & Co.									
1	Jaquith & Company Dairy Ration	14.4	19.7	20.0	4.3	4.0	47.2	8.2	8.0	6.2
2	Jaquith & Company Growing Mash	12.0	17.2	16.0	4.7	5.0	49.9	7.0	6.0	9.2
2	Jaquith & Company Horse Feed	14.3	12.6	12.0	4.0	3.5	59.7	5.5	7.0	3.9
2	Jaquith & Company Laying Mash	11.5	18.7	17.0	4.9	4.0	46.4	8.3	8.0	10.2
2	Jaquith & Company Starting Feed	11.8	16.6	14.0	5.0	5.0	53.2	6.6	4.0	6.8

[10]Phosphoric acid 9.1

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Kansas Flour Mills Corporation									
1	Big Flake Pure Wheat Bran	12.1	16.7	15.0	4.2	3.5	52.1	9.3	11.0	5.6
	Kasco Mills, Inc.									
1	Apex Complete Grower	11.0	16.4	14.0	4.6	4.0	56.7	6.0	8.5	5.3
1	Apex 20% Dairy Ration	11.8	21.3	20.0	4.1	3.5	49.9	6.3	12.0	6.6
1	Apex Growing Mash	11.0	18.3	17.0	4.7	4.0	52.8	6.3	8.5	6.9
4	Beatsall Milk Grains	12.9	23.0	22.0	4.2	4.0	46.3	6.3	10.0	7.3
1	Kasco All Mash Laying & Breeding Ration	11.9	17.7	15.0	5.1	4.0	52.8	5.1	6.5	7.4
1	Kasco Broiler Ration	10.7	20.5	18.0	4.8	4.0	51.6	5.7	7.5	6.7
1	Kasco Bulky Sweet Feed	11.3	14.5	9.0	3.0	1.5	49.0	12.2	15.0	10.0
1	Kasco Complete Rabbit Ration	11.6	14.9	12.0	3.6	2.0	52.2	11.4	15.0	6.3
4	Kasco Egg Producer	11.3	27.2	20.0	4.7	4.0	41.5	6.0	7.5	9.3
1	Kasco Laying & Breeding Mash	11.2	22.4	20.0	5.6	4.0	45.4	6.7	7.5	8.7
3	Kasco 20% Milk Maker	12.4	21.6	20.0	4.2	4.0	47.4	6.6	10.0	7.8
1	Kasco Pig Hog Feed	10.7	19.8	17.0	5.5	4.0	50.1	6.4	8.0	7.5
1	Kasco Poultry Flushing Mash	11.4	17.9	17.0	4.4	3.5	53.2	5.5	6.0	7.6
3	Kasco Sweet 16% Dairy Feed	12.4	15.3	16.0	4.1	3.5	47.1	11.8	12.0	9.3
	King Midas Flour Mills									
2	Cloverleaf Pure Wheat Bran	13.7	16.8	15.0	4.6	4.0	49.0	10.0	12.0	5.9
	Chas. A. Krause Milling Co.									
2	Badger White Hominy Feed	11.8	11.3	10.0	5.6	6.0	63.9	4.6	6.0	2.8
	Kuiper & Bolle									
1	Kay-Bee Brand Cotton Seed Meal	7.1	48.8	43.0	8.6	5.5	23.3	5.3	12.0	6.9
3	Kay-Bee Brand Linseed Meal	9.9	34.4	32.0	5.7	5.0	37.2	8.0	10.0	4.8
	Lakeside Milling Co., Ltd.									
1	Seagull Wheat Bran (Pure)	14.2	17.6	15.0	5.1	3.5	48.1	10.0	11.5	5.0
	Larrowe Milling Co. (Trade Name) of General Mills, Inc.									
2	Dried Beet Pulp	9.8	9.7	7.0	0.7	0.3	55.9	20.3	22.5	3.6
3	Larro The Ready Ration for Dairy Cows	10.7	21.7	20.0	4.3	3.75	48.4	8.8	12.0	6.1

1	Larro Chick Builder	12.8	20.0	19.0	4.2	4.0	48.3	5.9	7.0	8.8
4	Larro 16 Dairy Feed	11.6	16.6	16.0	3.6	3.0	53.3	9.5	11.0	5.4
1	Larro Egg Mash (1940 registration)	9.4	20.8	20.0	4.8	4.0	49.7	5.9	7.5	9.4
2	Larro Egg Mash	11.5	20.7	20.0	4.3	4.0	47.8	6.4	8.0	9.3
1	Larro Turkey Finisher	10.1	19.6	19.0	5.1	3.5	49.3	6.0	7.0	9.9
	Franklin L. Lewi, Division of Continental Grain Co.									
1	Argentine Cottonseed Meal	8.9	43.1	43.0	8.0	5.0	21.8	10.2	12.0	8.0
	L. B. Lovitt & Co.									
2	"Lovit Brand" 41% Protein Cottonseed Meal	6.6	41.1	41.0	6.5	5.0	29.5	10.0	13.0	6.3
	Maine Fish Meal Co.									
2	Maine Vitamin D Fish Meal[11]	10.0	55.0	55.0	16.9	10.0	—	—	—	20.5
	Mansfield Coal & Grain Co.									
2	Manco 20% Dairy Feed	11.3	22.0	20.0	4.6	4.3	48.8	7.2	7.5	6.1
2	Manco Growing Mash	11.5	15.8	16.5	4.8	5.0	55.7	5.5	5.2	6.7
2	Manco Laying Mash	10.6	21.5	20.0	5.4	5.0	47.1	5.7	5.3	9.7
	Mansfield Milling Co.									
2	Mansfield Chick-Growing Mash	11.8	18.3	17.0	4.4	4.0	51.1	6.4	8.0	8.0
2	Mansfield Chick-Starter	11.7	19.0	17.0	4.4	3.5	50.1	6.0	6.5	8.8
2	Mansfield Dry Poultry Mash	11.4	20.4	20.0	4.6	5.0	47.9	6.4	7.0	9.3
2	Mansfield Sweetened "20"	13.4	20.9	20.0	4.2	4.0	47.4	6.9	8.5	7.2
	Maple Leaf Milling Co., Ltd.									
2	Maple Leaf Red Dog	12.8	16.0	16.5	4.5	3.5	58.5	4.8	4.5	3.4
1	Rex Wheat Bran with Ground Screenings not Exceeding Mill Run	13.1	14.7	15.0	4.5	3.5	52.0	9.9	12.0	5.8
1	Rex Wheat Middlings with Ground Screenings not Exceeding Mill Run	11.7	15.3	16.0	4.9	5.0	57.1	6.7	9.0	4.3
2	Yellow Hominy Feed	12.1	11.1	10.0	9.3	6.0	61.6	3.4	5.0	2.5
	Maritime Milling Co., Inc.									
1	B-B Calf Meal	11.6	21.7	22.0	3.4	4.0	52.6	3.4	5.0	7.3
1	B-B Calf Starter Ration	11.8	16.5	18.5	3.5	3.0	52.2	6.3	8.0	9.7
1	B-B Complete Laying Ration	12.6	17.7	15.0	4.5	4.0	52.2	6.4	7.0	6.6
1	B-B Dry and Fresh Cow Fitting Ration	13.8	13.0	13.0	3.4	4.0	51.5	8.6	9.0	9.7
1	B-B Fattening Mash	10.3	16.3	13.0	5.1	4.0	56.5	6.1	6.0	5.7
1	B-B Goat Feed	13.5	13.1	13.0	4.0	4.0	52.1	7.5	9.0	9.8
2	B-B Growing Mash	11.9	18.7	15.0	4.5	4.0	51.9	6.1	8.0	6.9
2	B-B Horse Feed	13.7	11.7	9.0	3.8	2.0	58.9	6.3	10.0	5.6
1	B-B Layer & Breeder Mash	10.4	20.2	20.0	5.1	4.5	48.9	5.3	7.0	10.1
2	B-B Special Dairy Feed 20% Pro.	11.8	22.5	20.0	4.7	4.0	46.4	10.0	12.0	4.6

[11]Phosphoric acid 5.7

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Maritime Milling Co., Inc.—Concluded									
1	Bull Brand Stock Feed Sweetened	11.0	11.2	9.0	4.9	3.5	61.1	8.0	12.0	3.8
1	B-B Supplemental Pellets	11.6	25.0	24.0	4.7	4.0	43.3	5.7	6.5	9.7
3	Sweetened Bull Brand B-B 20 Dairy Ration	12.5	21.1	20.0	4.1	4.0	49.0	7.4	9.0	5.9
1	B-B Turkey Developer & Finishing Mash	10.8	19.0	18.0	4.7	4.0	52.1	6.2	8.0	7.2
2	Daisy Egg Mash	11.1	20.4	20.0	4.3	3.5	46.0	7.3	9.0	10.9
1	Daisy Horse Feed	12.5	10.0	6.5	3.3	1.5	58.2	7.8	12.0	8.2
1	Hi-Test Dairy Feed 24% Pro. Sweetened	12.7	25.4	24.0	3.8	4.0	42.1	7.3	12.0	8.7
3	Hi-Test Dairy Feed 20% Pro. Sweetened	13.3	21.9	20.0	3.9	4.0	45.5	9.3	12.0	6.1
3	Marmico 16% Protein Dairy Feed with Molasses	13.2	17.6	16.0	3.8	4.0	47.4	10.0	12.0	8.0
	Middlesex County Farm Bureau Association									
1	Farm Bureau All Mash Developer	10.7	16.4	14.5	4.6	3.5	56.9	6.2	6.0	5.2
1	Farm Bureau All Mash Laying	12.2	16.4	15.0	5.7	4.0	52.8	5.8	6.5	7.1
1	Farm Bureau Breeder & Laying Mash 20%	11.3	20.2	20.0	5.6	4.0	48.2	5.4	6.0	9.3
2	Farm Bureau Complete Laying Mash	11.4	19.7	15.0	4.5	4.0	50.2	5.7	5.5	8.5
1	Farm Bureau Conditioner & Fattener Mash	13.2	17.9	15.0	4.9	4.0	55.4	4.5	5.5	4.1
2	Farm Bureau Dairy Ration 20%	12.9	20.5	20.0	5.5	4.5	47.4	7.2	8.5	6.5
2	Farm Bureau Dairy Ration 16%	12.6	19.6	16.0	5.3	4.0	49.4	6.9	8.0	6.2
2	Farm Bureau Dairy Ration 12%	13.5	14.0	12.0	5.4	4.5	52.8	6.9	9.0	7.4
1	Farm Bureau Developer	12.4	18.9	18.5	4.9	4.5	51.6	6.0	6.5	6.2
2	Farm Bureau "EF-EF" Dairy Ration 20% (Flexible Formula)	12.2	20.3	20.0	5.0	4.0	47.8	9.2	11.5	5.5
2	Farm Bureau Horse Feed	13.2	11.8	10.5	3.5	3.5	63.3	5.3	6.0	2.9
1	Farm Bureau Laying Mash (No Milk)	11.6	20.8	20.0	5.0	4.0	50.2	2.9	6.5	9.5
2	Farm Bureau Laying Mash 17%	11.7	19.5	17.0	5.3	4.5	50.8	5.1	6.5	7.6
1	Farm Bureau Starter & Broiler	12.3	21.4	18.0	4.3	4.0	48.9	5.3	6.0	7.8
3	Farm Bureau Turkey Breeder Mash	10.6	21.5	24.0	5.1	4.5	47.9	5.4	6.0	9.5
1	Farm Bureau Turkey Fattener	10.8	20.3	18.0	4.4	4.0	51.0	5.0	6.0	8.5
2	Farm Bureau Turkey Growing Ration	10.1	21.1	20.0	4.9	4.0	48.5	6.0	5.5	9.4
1	Farm Bureau Turkey Starter	9.7	24.2	24.0	5.7	5.0	45.0	5.8	5.5	9.6
	Miner-Hillard Milling Co.									
2	Choice Steam Cooked Hominy Feed	11.3	11.0	10.0	7.4	5.0	63.7	3.9	5.0	2.7

	Geo. Q. Moon & Co., Inc.									
1	Complete Starter & Broiler Mash	11.1	18.3	18.5	4.4	4.0	52.1	6.6	6.0	7.5
1	Moon's Baby Chick Grains	10.8	11.7	10.0	6.4	3.0	69.0	1.0	2.5	1.1
1	Moon's Baby Chick Starter Mash	10.6	18.4	15.0	4.2	4.0	51.1	5.9	6.0	9.8
1	Moon's Complete Laying Mash	9.4	16.6	17.0	4.5	4.0	50.8	10.1	7.0	8.6
3	Moon's 24% Dairy Ration	12.3	26.0	24.0	3.8	4.0	44.2	6.1	10.0	7.6
1	Moon's 20% Dairy Ration with Molasses	11.9	19.8	20.0	4.3	3.5	48.2	8.6	11.0	7.2
2	Moon's 90 Horse Feed with Molasses	12.2	12.4	9.0	3.6	3.0	59.3	7.5	10.0	5.0
1	Moon's Laying Mash	10.7	20.9	20.0	4.7	4.0	48.9	6.6	9.0	8.2
1	Moon's Stock Feed	9.5	10.6	9.0	5.7	3.0	55.7	13.4	12.0	5.1
1	Moon's Turkey Growing Mash	10.0	21.9	20.0	5.1	4.5	47.4	7.1	6.5	8.5
1	Open Formula Dairy Ration	12.1	20.6	20.0	4.9	4.5	50.4	6.2	8.0	5.8
1	Special A 16% All Grain Ration	9.7	22.6	16.0	3.7	4.0	49.8	7.0	10.0	7.2
2	Special A Dairy 20% Ration	12.0	23.0	20.0	3.9	4.0	47.8	6.1	10.0	7.2
3	U. S. 20% Dairy Ration	11.1	21.2	20.0	4.1	4.0	46.2	10.5	12.0	6.9
	Jas. F. Morse & Co.									
1	Morse's 50% Meat & Bone Scraps[12]	6.7	47.9	50.0	10.9	8.0	—	—	—	31.4
3	Morse's 45% Meat & Bone Scraps[13]	6.2	48.1	45.0	11.0	8.0	—	—	—	32.5
	Muir & Co.									
4	32% Protein Old Process Linseed Meal	9.8	34.4	32.0	5.8	5.0	36.9	8.0	10.0	5.1
	National Distillers Products Corporation									
4	Produlac Brand Dried Corn Distillers Grains with Solubles	7.1	28.7	27.0	9.4	8.0	43.1	7.6	9.0	4.1
	National Lead Co., and John T. Lewis & Bros. Co.									
3	32% Old Process Linseed Meal	9.9	32.0	32.0	5.8	4.5	38.7	8.3	10.0	5.3
	Neumond Co.									
1	Neumond's 17% Dehydrated Alfalfa Meal	7.5	17.8	17.0	3.3	1.5	40.8	23.3	27.0	7.3
2	Neumond Dried Brewers Grains	7.7	27.0	24.0	6.5	4.5	41.0	13.8	18.0	4.0
	New England Dairies, Inc.									
3	New England Dairies Skim Milk Powder[14]	6.9	34.5	32.0	0.6	0.025	—	—	—	7.9
	New England Grain Co.									
2	New England Broiler Ration	11.8	18.7	15.0	5.6	5.0	51.2	5.2	6.0	7.5
1	New England Economy Laying Mash	10.8	20.2	20.0	5.4	5.0	50.0	5.3	8.0	8.3
1	New England Economy Starter & Growing Feed	11.5	18.2	18.0	5.5	5.0	52.3	5.4	8.0	7.1
1	New England Fitting Ration	12.0	16.0	14.0	4.4	4.5	55.8	5.6	8.0	6.2
1	New England Intermediate Chick Feed	11.7	9.8	10.0	3.4	1.5	72.1	1.4	5.0	1.6
1	New England Open Formula 20% Dairy Feed	11.5	21.1	20.0	5.0	5.0	49.5	6.4	8.5	6.5
1	New England Pig and Hog Ration	12.1	17.0	15.0	5.3	5.0	52.5	5.0	10.0	8.1

[12]Phosphoric acid 12.5 [13]Phosphoric acid 12.3 [14]Lactose 50.1

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	New England Grain Co.—Concluded									
1	New England Sterling Laying Mash	12.5	20.0	20.0	4.9	5.0	48.6	5.3	8.0	8.7
1	New England Sweetened Stock Feed	11.6	13.5	9.0	4.3	4.0	61.2	5.5	10.0	3.9
	New England Rendering Co.									
1	Boston Pure Cod & Haddock Meal[15]	8.4	61.0	62.0	9.2	5.0	—	—	—	21.1
	New England Retail Grain Dealers Cooperative Association, Inc.									
1	Complete Calf Grower 10% Manna	14.3	18.0	12.0	3.2	4.0	52.0	7.3	8.0	5.2
2	New England Egg Producer	13.1	16.4	15.5	4.2	4.0	54.5	5.1	5.5	6.7
3	New England Quality 20% Dairy Feed	13.2	20.7	20.0	3.9	4.0	47.1	8.3	9.0	6.8
2	New England Quality 16% Dairy Feed	12.4	18.3	16.0	3.9	4.0	48.9	9.0	12.0	7.5
2	New England Quality Fitting Ration	13.4	13.5	14.5	4.2	4.0	58.1	6.0	9.0	4.8
4	New England Quality Horse Feed	12.9	10.9	10.0	3.2	3.0	64.9	5.3	9.0	2.8
1	New England Quality Laying Mash	11.9	20.2	20.0	4.6	4.0	49.0	6.9	7.0	7.4
1	New England Special Egg Producer	11.6	17.1	15.5	4.3	4.0	55.9	4.9	5.5	6.2
2	New England Yankee 20% Dairy Ration	13.8	20.2	20.0	3.9	3.5	46.5	8.6	9.0	7.0
5	New England Yankee Egg Mash	12.2	21.0	18.0	4.8	4.0	48.8	6.0	8.0	7.2
1	New England Yankee Growing Mash	13.5	18.3	17.0	4.3	4.0	50.1	5.7	8.0	8.1
	Northern Milk Corporation									
1	Northco Brand Powdered Skim milk[16]	4.0	34.4	30.0	0.6	0.5	—	—	—	8.5
	Ogden Grain Co.									
4	"Biddy" Laying Mash	11.8	18.6	18.0	4.7	4.0	50.5	6.0	7.0	8.4
1	Cloverbloom 20% Dairy Feed	12.5	20.1	20.0	4.1	3.0	46.6	8.9	12.0	7.8
3	Ograinco Milk Ration	11.5	22.4	20.0	4.1	3.5	46.1	8.1	8.0	7.8
1	Pilgrim All Purpose Complete Ration	10.1	16.3	16.0	5.5	4.0	52.8	6.7	6.0	8.6
2	Pilgrim "Cackle" 20% Layer-Breeder	10.9	20.4	20.0	6.1	4.0	47.4	5.8	8.0	9.4
3	Pilgrim 16% Dairy Feed	12.4	17.0	16.0	4.4	4.0	52.3	6.4	8.0	7.5
3	Pilgrim Fitting Ration	13.3	12.7	12.5	4.1	3.5	57.1	5.7	7.0	7.1
1	Pilgrim Growing Mash	10.7	13.7	16.0	5.2	4.0	58.0	6.2	8.0	6.2
2	Pilgrim Horse Feed	12.7	10.1	10.0	3.5	3.0	64.4	6.0	9.0	3.3
4	Pilgrim Laying Mash	11.5	20.6	20.0	4.9	4.0	47.9	6.4	7.0	8.7

3	Thrift 20% Dairy Feed	12.2	21.6	20.0	4.2	3.25	49.3	7.0	8.5	5.7
2	Thrift Growing Mash	11.9	16.5	16.0	4.8	4.0	52.6	6.3	8.0	7.9
1	Thrift Starter & Broiler Ration	10.3	18.8	18.0	5.0	4.0	53.1	5.1	6.0	7.7
	Oswego Soy Products Corporation									
2	41% Protein Soy Bean Oil Meal	11.4	45.0	41.0	4.9	4.5	27.2	5.8	7.0	5.7
	Park & Pollard Co.									
2	Bidwell Laying Mash	10.0	19.6	18.0	3.7	3.0	53.2	5.8	8.0	7.7
2	Doublex 24% Dairy Ration	11.1	24.8	24.0	6.8	3.5	40.7	7.7	11.0	8.9
1	Doublex 20% Dairy Ration	11.5	20.0	20.0	4.6	3.5	46.1	8.7	11.0	9.1
1	Doublex 16% Dairy Ration	9.9	17.6	16.0	4.5	3.5	50.3	9.2	12.0	8.5
1	Go-Tu-It Pig & Hog Ration	10.5	16.9	15.0	4.0	3.0	55.0	5.7	8.0	7.9
2	Hi-Valu Scratch Feed (Pellets)	11.8	11.9	11.5	3.4	2.5	64.3	4.7	8.0	3.9
1	Lay or Bust Dry Mash	10.4	20.9	20.0	4.4	3.0	51.4	5.6	7.0	7.3
2	Manamar Doublex 20% Dairy Ration	11.5	21.8	20.0	4.1	3.5	45.8	8.4	11.0	8.4
1	Manamar Life Cycle Mash	11.1	16.6	16.0	4.3	3.5	55.5	5.7	7.0	6.8
1	Milkade Calf Starter	8.7	25.5	22.0	4.5	4.0	47.6	5.0	5.0	8.7
1	Milkmaid 24% Sweetened Dairy Ration	9.3	24.9	24.0	5.4	4.0	45.3	7.2	10.0	7.9
1	Milkmaid 20% Dairy Ration	10.2	21.2	20.0	4.8	4.0	49.9	6.9	10.0	7.0
1	Park & Pollard Chick Starter	9.7	18.9	17.0	4.3	3.5	54.6	5.3	6.0	7.2
1	Park & Pollard Fitting Ration	11.3	13.0	12.0	3.1	3.0	60.0	5.4	8.0	7.2
1	Park & Pollard Fleshing Pellets	11.1	18.4	16.0	4.0	4.0	54.8	5.5	7.0	6.2
2	Park & Pollard Growing Feed	10.6	16.8	16.0	4.0	3.0	55.2	5.7	7.0	7.7
1	Park & Pollard Layer & Breeder Pellets	10.9	20.0	20.0	4.4	3.0	52.7	5.7	6.5	6.3
1	Park & Pollard Starter & Broiler Mash	10.0	19.3	18.0	4.4	4.0	54.0	4.9	6.0	7.4
1	Park & Pollard Stock Feed	9.2	10.8	9.0	3.7	4.0	56.8	12.2	12.0	7.3
2	Yankee Horse Feed	13.4	11.3	10.0	4.1	3.5	61.7	6.3	9.0	3.2
	George H. Parker Grain Co.									
1	Parker's Egg Mash	9.1	18.8	18.0	6.1	5.0	48.9	7.3	7.0	9.8
1	Parker's Growing Mash	11.5	16.8	17.0	5.5	4.5	51.4	7.0	6.0	7.8
1	Parker's Special Dairy Ration	11.2	21.0	19.0	4.7	4.0	46.6	8.9	12.0	7.6
1	Parker's Starter & Broiler Mash	12.4	18.6	17.5	6.2	4.0	49.8	5.6	7.0	7.4
	Parrish & Heimbecker, Ltd.									
1	Parrheim Pure Wheat Bran	14.5	15.4	15.0	4.9	3.5	53.6	7.6	11.5	4.0
	Patent Cereals Co.									
1	Hominy Feed	10.9	11.0	10.0	6.8	5.0	64.5	4.0	5.0	2.8

[15]Phosphoric acid 8.3 [16]Lactose 52.5

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Pecos Valley Alfalfa Mill Co.									
1	Velvet Brand Alfalfa Meal	5.9	15.9	17.0	2.2	1.5	35.8	31.9	27.0	8.3
	Pillsbury Flour Mills									
1	Pillsbury's Hard Wheat Standard Middlings with Ground Wheat Screenings not exceeding Mill Run	12.2	18.9	15.0	5.2	4.0	49.6	9.3	9.5	4.8
2	Pillsbury's Fancy Wheat Mixed Feed with Ground Wheat Screenings not exceeding Mill Run	12.2	18.1	15.0	4.9	4.0	54.7	6.0	8.5	4.1
	Maurice Pincoffs Co.									
1	Pinco Brand 43% Protein Cotton Seed Meal	8.4	40.3	43.0	8.5	5.5	28.6	8.4	12.0	5.8
	H. C. Puffer Co.									
2	Egg Em On Complete Egg Mash	11.8	16.1	15.0	4.9	4.0	53.4	5.7	6.0	8.1
1	Egg Em On Growing Mash	10.6	18.7	18.0	4.4	4.0	51.7	6.1	7.0	8.5
2	Egg Em On Laying Mash	10.9	21.5	20.0	4.6	4.0	46.1	6.6	9.0	10.3
1	Egg Em On Starting Mash	11.1	17.6	16.0	4.5	4.0	55.4	4.5	6.0	6.9
2	Producer Dairy Feed	11.0	23.3	20.0	4.5	3.5	46.1	7.0	10.0	8.1
2	Sweetened Producer Dairy Feed	11.2	21.9	20.0	4.2	3.5	43.0	11.6	12.5	8.1
1	Puffer's 75% Horse Feed	14.0	12.0	10.0	3.4	3.5	60.7	5.1	9.0	4.8
1	Puffer's Stock Feed	11.7	13.7	10.0	3.6	3.0	50.1	12.5	12.0	8.4
	Quaker Oats Co.									
1	Bell Cow Wheat Bran	13.7	17.0	15.0	5.2	3.5	50.1	8.7	11.5	5.3
2	Bell Cow Wheat Shorts	13.2	18.1	16.0	5.0	5.0	54.7	5.4	8.0	3.6
1	Ful-O-Pep Chick Starter	10.0	19.6	17.0	5.5	4.5	52.4	5.2	7.0	7.3
2	Ful-O-Pep Crate Fattener	10.3	14.0	13.0	5.6	4.0	60.5	6.3	7.5	3.3
1	Ful-O-Pep Developer	10.4	18.2	17.0	5.0	4.5	52.2	6.8	8.0	7.4
3	Ful-O-Pep Egg-Breeder Mash	9.7	19.8	20.0	6.6	4.5	49.3	6.1	8.0	8.5
1	Ful-O-Pep Fine Chick Feed	11.5	11.7	11.0	3.8	2.5	70.0	1.5	2.0	1.5
2	Ful-O-Pep Growing Mash	9.0	19.6	19.0	6.4	5.0	51.6	5.6	7.0	7.8
1	Ful-O-Pep Laying Mash	10.1	18.9	20.0	6.1	4.5	52.0	7.2	8.0	5.7
2	Ful-O-Pep Super Greens Pellets	8.5	19.4	19.0	7.3	4.5	51.3	5.7	7.0	7.8
1	Ful-O-Pep Turkey Grower	9.5	21.3	20.0	6.9	4.5	47.3	5.7	8.0	9.3
1	North Star Oatmeal	7.1	14.1	15.0	6.8	5.0	66.5	3.6	3.75	1.9

1	Peterborough Oat Feed	8.1	4.8	4.0	1.9	1.5	52.2	27.8	32.0	5.2
2	Quaker 24% Protein Dairy Feed	10.3	22.5	24.0	4.2	3.75	45.3	9.2	12.0	8.5
4	Quaker 20% Protein Dairy Ration	10.3	19.5	20.0	4.7	4.0	47.8	10.3	12.0	7.4
2	Quaker 16% Protein Dairy Ration	10.1	15.9	16.0	4.3	3.75	51.3	10.1	12.0	8.3
1	Quaker Green Cross Horse Feed	12.8	10.2	10.0	2.9	2.5	59.8	9.2	12.0	5.1
2	Quaker Pig-N-Hog Feed	10.0	18.4	16.0	5.0	3.5	51.9	6.2	10.0	8.5
3	Quaker Sugared Schumacher Feed	9.6	10.9	10.0	3.7	3.0	59.0	9.6	12.0	7.2
2	Schumacher Calf Meal	9.5	19.9	20.0	6.0	5.0	54.3	4.1	5.0	6.2
1	Vim Oat Mill Feed	7.2	6.1	5.0	2.1	1.5	51.9	26.0	30.0	6.7
1	White Hominy Feed	12.1	10.0	10.0	7.8	5.0	65.3	2.9	5.0	1.9
1	Yellow Hominy Feed	12.7	10.8	10.0	7.8	5.0	62.4	3.7	5.0	2.6
	Ralston Purina Co.									
1	Protena 20% Dairy Feed	12.5	22.0	20.0	4.4	3.5	44.6	8.0	12.0	8.5
1	Purina Chick Growena	12.2	17.1	15.0	4.8	3.5	55.7	5.1	7.0	5.1
3	Purina 24% Cow Chow	11.5	26.6	24.0	5.1	4.0	43.2	6.5	11.0	7.1
1	Purina 20% Cow Chow	11.1	21.8	20.0	5.3	4.0	48.9	6.1	10.0	6.8
1	Purina 18% Cow Chow	12.6	18.7	18.0	4.9	4.0	52.1	5.1	10.0	6.6
1	Purina 16% Cow Chow	11.4	17.3	16.0	4.6	4.0	54.2	5.9	10.0	6.6
2	Purina 14% Cow Chow	12.8	17.0	14.0	4.8	3.5	52.3	6.8	10.0	6.3
2	Purina Dry and Freshening Chow	13.2	14.1	12.5	3.1	2.5	49.7	11.5	14.0	8.4
1	Purina Egg Chow (Complete Ration)	10.1	18.0	15.5	4.4	3.5	52.4	6.4	8.0	8.7
2	Purina Family Flock Chow	11.2	19.5	18.0	4.4	3.5	49.7	6.1	8.0	9.1
1	Purina Layena (Complete Ration)	11.2	18.0	15.5	4.7	3.5	52.1	4.8	8.0	9.2
2	Purina Milk Chow (20%)	13.2	22.0	20.0	4.5	3.5	45.9	7.3	11.0	7.1
2	Purina Omolene	13.4	10.9	10.0	4.2	3.0	61.3	6.6	11.0	3.6
1	Purina Turkey-Chicken Fatena Checkers	10.5	16.0	14.0	4.2	3.5	58.8	5.1	7.0	5.4
1	Purina Turkey Growena	9.9	20.5	18.0	4.5	3.5	53.7	5.2	7.0	6.2
	John Reardon & Sons Division of Wilson & Co., Inc.									
1	Rearco 72 Feeding Bone	3.8	6.6	5.0	0.3	—	—	—	—	85.5
2	50% Register Brand Meat and Bone Scraps[17]	5.3	50.9	50.0	11.1	8.0	—	—	—	30.5
2	45% Register Brand Meat & Bone Scraps[18]	5.8	46.5	45.0	12.7	8.0	—	—	—	33.9
2	Register Brand White Fish Meal[19]	11.8	61.9	62.0	6.7	3.0	—	—	—	20.3
	D. F. Riley									
1	Riley's 20% Dairy Ration	12.7	21.2	20.0	4.7	4.5	48.4	6.7	9.0	6.3
	Roy Grain Co.									
2	Roy's Hen Mash	11.2	18.5	18.0	4.5	4.5	48.9	5.7	7.0	11.2
1	Roy's Starter and Grower	10.1	18.2	18.0	4.4	4.5	51.0	5.6	7.0	10.7

[17]Phosphoric acid 11.4 [18]Phosphoric acid 13.2 [19]Phosphoric acid 8.8

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Russell-Miller Milling Co.									
1	Hard Wheat Occident Bran	14.0	18.1	14.0	4.6	4.0	49.2	8.4	11.5	5.7
1	Hard Wheat Occident Standard Middlings	12.7	19.1	15.0	5.4	4.0	49.6	8.6	9.5	4.6
1	Hard Wheat Occident Mixed Feed	12.0	18.4	15.0	5.2	4.5	52.3	6.9	9.5	5.2
	Ryther & Warren Co.									
1	Blue Tag Dairy Ration	11.1	22.0	20.0	4.7	4.5	47.5	7.9	10.0	6.8
1	Minot Chick Mash	11.9	18.6	18.0	4.8	4.0	52.0	5.1	5.0	7.6
1	Minot Growing Mash	11.2	19.9	18.5	5.3	4.5	48.8	6.2	6.0	8.6
1	Minot Milk Egg Mash	11.2	18.3	17.0	5.8	4.5	50.8	6.1	7.0	7.8
	St. Lawrence Flour Mills Co., Ltd.									
1	Premier Wheat Bran	14.7	17.3	15.0	5.4	3.5	46.9	10.2	11.5	5.5
	Saunders Mills, Inc.									
2	Alfalfa Leaf Meal	6.1	18.7	20.0	3.1	1.5	41.5	20.8	18.0	9.8
1	Velvet Brand 20 Alfalfa Meal	10.2	16.7	20.0	2.2	1.5	39.7	24.0	18.0	7.2
2	Carotene Brand Poultry Meal Dehydrated Alfalfa Meal	7.3	17.8	17.0	3.5	1.5	39.4	24.9	28.0	7.1
	Schenley Distilleries, Inc.									
1	Schenley Mark of Merit Corn Distillers Dried Grains 28%	8.9	26.2	28.0	8.6	8.0	42.7	11.8	13.0	1.8
	Schoeneck Farms, Inc.									
4	Schoenecks Super-Green Dehydrated Alfalfa Meal	7.3	17.1	17.0	2.6	2.0	38.7	25.7	25.0	8.6
	Seaboard Western Grain Corporation									
1	Wheat Standard Middlings & Screenings Mill Run	12.8	16.1	14.0	4.0	4.0	53.1	8.9	9.5	5.1
	Joseph E. Seagram & Sons, Inc.									
1	Seagram's Corn Distillers Dried Grains	7.7	25.5	28.0	8.9	8.0	43.7	12.6	14.0	1.6
	Sherwin-Williams Co.									
1	Sherwin-Williams Pure Old Process Linseed Meal	7.8	34.4	32.0	7.3	4.5	36.8	8.2	9.0	5.5

	Mrs. Annie P. Smith									
1	Pentucket Laying Mash	10.5	17.4	16.2	5.2	3.5	51.7	7.1	8.0	8.1
	A. E. Staley Manufacturing Co.									
5	Staley's Corn Gluten Feed	11.8	27.1	25.0	2.5	1.5	44.7	6.1	8.0	7.8
2	Staley's 41% Protein Soybean Oil Meal	11.9	43.5	41.0	4.7	4.0	29.1	5.2	7.0	5.6
	Stratton & Co.									
2	Stratton's Bran	13.0	14.8	14.0	4.9	4.0	53.0	8.4	11.0	5.9
2	Stratton's Middlings	12.8	15.0	14.0	4.8	4.0	57.3	5.7	9.0	4.4
1	Stratton's Mixed Feed	12.6	14.9	13.5	4.4	4.11	56.9	6.4	7.13	4.8
2	Stratton's "24" Stock Feed	11.6	9.0	7.5	3.9	2.83	57.1	14.9	14.43	3.5
	Sunny Slope Farms									
2	Sunny Slope Farms Brand Alfalfa Meal	5.7	18.2	17.0	2.5	2.0	38.0	25.8	27.0	9.8
	C. H. Symmes & Co.									
1	The Ideal Dairy Ration	13.6	20.0	20.0	4.1	3.5	49.8	6.1	8.5	6.4
	Estate of Silas Taft									
1	Taft Special Dairy Ration	13.9	21 4	20.0	4.1	3.5	47.5	6.8	8.0	6.3
	Texas Star Flour Mills									
1	White Hominy Feed	11.7	9.4	10 0	5.3	6.0	69.6	2.6	7.0	1.4
	Tioga Mills, Inc.									
1	Neverfail Grower	11.6	16.7	16.0	4.1	3.5	55.6	5.3	8.0	6.7
1	Neverfail Laying Food	11.1	19.8	18.5	4.7	3.0	50.8	5.2	7.5	8.4
3	Tasty Laying Food	10.4	22.3	20.0	4.9	3.5	46.9	6.2	7.5	9.3
1	Ti-O-Ga Calf Food	12.3	25.2	24.0	3.5	3.0	47.6	4.0	5.0	7.4
2	Ti-O-Ga 32% Feed	10.7	33.8	32.0	5.5	4.5	33.9	5.9	10.0	10.2
2	Ti-O-Ga E-Gee 20% Dairy Feed	10.4	22.3	20.0	5.8	4.5	46.1	7.7	10.0	7.7
1	Ti-O-Ga Fitting Ration	12.3	14.3	12.0	4.8	4.0	54.8	7.1	9.0	6.7
1	Ti-O-Ga Grower	12.3	18.9	17.0	4.2	3.5	51.0	6.0	8.0	7.6
1	Ti-O-Ga Horse Feed	11.1	11.5	10.0	4.6	3.0	61.8	5.7	8.0	5.3
	Toledo Soybean Products Co.									
1	Super-Duo-Soybean Oil Meal	11.4	44.9	41.0	4.3	4.5	29.2	5.0	7.0	5.2
	Tremaine Alfalfa Ranch & Milling Co., Inc.									
2	Arizona Brand Alfalfa Leaf Meal	8.6	18.2	20.0	2.5	2.5	39.0	18.6	18.0	13.1
2	Tremaine Brand Alfalfa Meal	8.1	16.3	16.0	2.0	2.0	37.1	25.9	25.0	10.6
	Jacob Trinley & Sons									
1	Favorite Growing Mash	11.6	17.6	16.0	5.0	4.0	50.3	6.8	8.0	8.7
2	Favorite Laying (Complete) Mash	11.1	19.8	18.0	4.6	4.0	47.2	6.5	8.0	10.8

Complete Average Analyses of Feeds Collected (Per Cent)—Continued

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	Jacob Trinley & Sons—Concluded									
1	Limerick Laying Mash	11.9	22.0	18.0	4.7	4.0	45.5	7.4	8.0	8.5
2	Limerick Stock Feed	13.1	10.8	9.0	3.3	2.5	54.4	13.1	12.0	5.3
1	Real Chick Feed	12.5	12.5	10.0	2.9	2.5	69.3	1.4	4.0	1.4
1	Real Hog Feed	10.3	20.6	18.0	4.3	4.0	45.6	9.4	10.0	9.8
3	Supreme 85% Horse Feed	14.4	10.0	9.0	3.5	3.0	62.0	6.3	11.0	3.8
1	Trinley's 24% Dairy Feed	12.5	26.1	24.0	4.9	4.0	42.5	7.6	11.0	6.4
2	Trinley's 20% Dairy Feed	12.7	20.3	20.0	4.6	4.0	47.7	8.0	11.0	6.7
	Union Starch & Refining Co.									
1	Union Corn Gluten Feed	11.8	24.8	25.0	3.0	2.0	46.4	7.6	8.5	6.4
2	Union Corn Gluten Meal	7.9	42.4	41.0	1.1	1.0	43.3	3.8	5.0	1.5
	Union Supply & Milling Corporation									
2	Sunshine Brand Alfalfa Leaf Meal	8.4	21.3	20.0	2.9	3.0	38.6	17.9	18.0	10.9
	United Co-Operative Farmers, Inc.									
1	United Farmers Breeder Mash	11.9	18.4	18.5	5.1	4.0	51.5	5.9	8.0	7.2
1	United Farmers Broiler	10.5	19.6	16.5	5.7	4.0	48.0	6.6	8.0	9.6
2	United Farmers Egg Mash	11.1	22.5	20.0	5.3	4.0	44.8	6.9	7.5	9.4
2	United Farmers Fitting Ration	13.3	14.3	12.0	4.1	3.5	54.5	7.4	9.0	6.4
1	United Farmers Grower	10.8	19.0	17.0	4.8	4.0	51.5	6.5	7.0	7.4
1	United Farmers Horse Feed	12.4	11.7	10.5	3.7	3.5	62.0	4.8	6.5	5.4
1	United Farmers Layer (1940 registration)	10.5	22.2	18.5	6.0	4.5	45.6	6.5	7.5	9.2
1	United Farmers Layer	12.1	20.0	19.0	5.0	5.0	48.7	5.5	8.0	8.7
1	United Farmers Milkmaker	11.2	22.0	20.0	5.5	4.5	47.5	7.6	8.0	6.2
2	United Farmers Milk Pep	11.0	24.1	24.0	5.1	4.5	46.1	7.6	8.0	6.1
1	United Farmers Special Starter-Broiler	11.5	22.2	18.0	4.4	4.0	46.6	6.5	8.0	8.8
1	United Farmers Starter	10.9	18.7	17.0	5.0	4.0	52.5	5.6	6.0	7.3
	Unity Feeds, Inc.									
1	Lifesaver 20% Dairy Ration	10.5	21.9	20.0	3.4	3.0	47.3	8.9	11.0	8.0
2	Lifesaver 16% Dairy Ration	12.1	18.4	16.0	3.3	3.0	48.6	9.8	12.0	7.8
2	Paycheck 24% Dairy Ration	11.1	25.2	24.0	5.1	4.0	42.6	8.4	11.0	7.6
3	Paycheck 20% Dairy Ration	11.6	22.6	20.0	5.1	4.0	44.5	8.9	11.0	7.3

3	Paycheck Laying Mash	11.3	18.9	18.0	5.2	3.0	50.4	6.0	8.0	8.2
1	Unity Complete Starting & Broiler Mash	11.3	18.8	17.0	6.1	3.5	49.4	5.8	6.0	8.6
2	Unity 20% Dairy Ration	12.2	22.8	20.0	4.7	4.0	46.1	6.8	10.0	7.4
2	Unity Fitting Ration	13.8	14.4	12.0	4.6	4.0	55.3	5.5	7.0	6.4
1	Unity Growing Mash	11.3	16.0	14.0	4.5	3.0	54.0	6.2	7.0	8.0
1	Unity Horse Feed	13.8	10.6	10.0	3.3	3.0	62.0	6.0	9.0	4.3
1	Unity Laying Mash	10.0	18.6	18.0	6.0	3.0	50.5	5.7	7.0	9.2
2	Unity Stock Feed	10.5	10.3	8.5	3.9	4.0	58.5	9.9	12.0	6.9
	Universal Grain Corporation									
2	Wheat Bran with Ground Screenings Mill Run	13.0	17.6	13.0	4.0	4.0	50.2	8.7	13.0	6.5
1	Wheat Standard Middlings	12.7	15.4	14.0	4.1	4.0	53.5	9.4	9.5	4.9
	Arthur Ventura Grain Co.									
2	Every Day Dairy	12.5	21.2	22.0	4.1	4.5	49.7	6.9	7.0	5.6
2	Ventura Grower	11.0	15.4	16.0	4.7	4.0	54.2	6.8	6.0	7.9
2	Ventura Laying Mash	11.6	18.5	19.0	5.2	5.0	51.2	6.0	7.0	7.5
1	Ventura Starter	12.0	17.4	17.0	4.8	4.0	51.4	6.6	6.0	7.8
	Ward Milk Products Division, Kraft-Phoenix Cheese Corporation									
2	Ward's Dried Skim Milk[20]	6.2	34.7	32.0	1.0	1.0	—	—	—	8.2
	C. P. Washburn Co.									
2	"Made Right" Complete Broiler Ration	10.2	19.9	18.0	4.8	4.0	51.6	6.9	7.0	6.6
2	"Made Right" Complete Layer	11.4	17.5	16.0	4.7	4.0	52.4	6.8	6.0	7.2
3	"Made Right" 16% Dairy Feed	11.0	17.8	16.0	4.7	3.5	51.7	8.8	12.0	6.0
1	"Made Right" Dry Mash	11.5	19.1	20.0	4.5	4.5	49.3	7.6	7.0	8.0
3	"Made Right" Fitting Ration	12.8	14.6	13.5	4.1	3.5	56.2	6.5	9.0	5.8
2	"Made Right" Horse Feed	13.5	11.0	8.0	3.5	3.0	65.6	4.1	7.0	2.3
3	"Made Right" Mixed Feed	12.2	16.2	15.0	4.1	3.5	55.8	7.1	9.0	4.6
1	"Made Right" Special Dairy	12.0	20.2	20.0	4.6	3.5	49.1	8.0	12.0	6.1
2	"Made Right" Starting and Growing Feed	10.8	19.5	20.0	4.7	4.0	48.8	7.6	7.0	8.6
3	"Made Right" Sweet Dairy Feed	11.0	20.9	20.0	4.8	4.0	48.9	7.7	8.0	6.7
2	"Made Right" White Stock Feed	11.2	9.3	8.0	4.6	3.5	62.6	9.2	10.0	3.1
	Wayne County Grangers Feed Corporation									
1	Clyde 20% Dairy Feed	13.8	22.0	20.0	4.2	4.0	45.4	7.9	12.0	6.7
2	Complete Calf Grower Containing 25% Calf Manna	13.8	17.7	16.0	4.0	4.0	52.9	6.8	7.0	4.8
1	Milkproducer 24% Dairy Feed	14.1	23.1	24.0	3.9	4.0	45.2	7.3	10.0	6.4
1	Milkproducer 20% Dairy Feed	14.5	21.3	20.0	4.0	4.0	46.4	7.5	10.0	6.3
1	Superior 20% Dairy Feed	13.7	23.0	20.0	4.4	4.0	45.0	7.6	10.0	6.3
	H. K. Webster Co.									
2	Blue Seal All-Mash Growing Ration	12.0	17.4	14.5	4.9	4.0	53.6	4.9	5.0	7.2
1	Blue Seal All-Mash Growing Ration	12.6	16.7	14.5	4.6	4.0	55.3	4.6	5.5	6.2

[20]Lactose 49.9

Complete Average Analyses of Feeds Collected (Per Cent)—Concluded

Number of Samples	MANUFACTURER AND BRAND	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
	H. K. Webster Co.—Concluded									
1	Blue Seal Breeders' All-Mash Ration (1940 registration)	11.0	17.3	15.0	4.7	4.5	55.1	4.6	4.5	7.3
1	Blue Seal Breeders' All-Mash Ration	13.3	17.2	15.0	4.9	4.0	53.7	4.8	5.0	6.1
3	Blue Seal Breeders' Mash	11.0	21.0	20.0	5.0	4.0	47.6	4.8	6.0	10.6
1	Blue Seal Breeder-Layer Pellets	10.0	20.2	20.0	4.9	4.0	50.5	4.8	6.0	9.6
1	Blue Seal Breeders' Laying Mash	11.8	20.3	20.0	5.1	4.0	48.9	4.8	6.0	9.1
3	Blue Seal Broiler Ration	11.0	26.3	20.0	5.4	4.0	41.6	4.9	6.0	10.8
1	Blue Seal Calf Ration	11.3	19.7	18.0	4.8	4.5	56.1	2.9	4.0	5.2
3	Blue Seal Chick Starter	11.2	20.4	18.0	5.0	4.0	50.3	5.8	6.0	7.3
3	Blue Seal "20" Dairy Ration	11.8	23.6	20.0	5.0	4.0	45.8	7.3	9.0	6.5
3	Blue Seal "18" Dairy Ration	12.9	17.6	18.0	4.1	4.5	52.2	7.0	9.0	6.2
1	Blue Seal "16" Dairy Ration	13.5	17.6	16.0	4.5	4.0	50.4	7.4	9.0	6.6
3	Blue Seal Egg Mash	11.7	21.1	20.0	4.8	4.0	47.9	4.8	6.0	9.7
3	Blue Seal Fitting Ration	13.2	15.3	14.0	4.5	4.0	53.4	7.0	8.0	6.6
3	Blue Seal Fleshing Pellets	10.7	17.2	15.0	5.7	5.0	54.9	4.8	4.0	6.7
2	Blue Seal Growing Mash	11.9	18.9	18.0	5.0	4.0	51.0	5.4	6.5	7.8
3	Blue Seal Hom-Mix 24% Dairy Ration	10.8	26.8	24.0	5.0	4.5	43.7	7.9	9.0	5.8
2	Blue Seal Horse Feed	13.2	11.4	10.5	3.6	3.5	63.1	4.5	7.5	4.2
4	Blue Seal Improved All-Mash Ration	12.2	17.9	15.0	4.9	4.0	53.0	4.5	5.0	7.5
3	Blue Seal Improved Balanced Ration	11.7	26.2	24.0	4.9	4.5	44.2	7.1	8.5	5.9
1	Blue Seal Laying Mash	11.0	18.1	20.0	4.4	4.0	52.8	4.9	6.0	8.8
3	Blue Seal Pig Feed	11.6	18.1	15.0	5.4	5.0	52.4	5.6	6.0	6.9
2	Blue Seal Special 20% Dairy Ration	11.3	22.3	20.0	5.1	4.5	45.2	9.2	10.0	6.9
2	Blue Seal Stock Feed	10.0	12.7	8.5	3.9	3.5	55.8	11.8	11.0	5.8
3	Blue Seal Succulent Feed	10.9	12.6	10.0	2.6	2.0	49.6	15.4	15.0	8.9
1	Blue Seal Turkey Growing	10.1	21.6	20.0	4.7	4.5	47.8	4.9	5.5	10.9
	Williams Bros. Co.									
1	Kent Mixed Feed	12.9	15.2	15.0	4.1	3.5	55.6	7.2	9.5	5.0
	Est. M. G. Williams									
2	Williams' Balanced Ration	11.8	20.9	20.0	4.8	4.0	46.1	7.5	12.0	8.9
1	Williams' Chick Starter	12.8	19.3	17.0	4.3	4.0	49.8	5.1	7.0	8.7
1	Williams' Growing Mash	11.0	18.0	15.0	5.4	4.0	50.9	5.5	7.0	9.2
2	Williams' Laying Mash	11.8	18.1	16.0	5.0	4.0	50.6	5.8	7.0	8.7

	Wilmington Packing Co.									
2	Wilpaco White Fish Meal	11.8	63.3	63.0	6.6	2.0	—	—	—	19.6
1	Phoenix Blended Fish Meal[21]	6.7	57.1	55.0	8.9	8.0	—	—	—	23.0
	Stanley Wood Grain Co.									
2	Bliss Dairy Ration	11.2	22.5	22.0	4.7	5.0	47.8	6.2	10.0	7.6
2	Preferred Complete Growing Ration	11.9	16.2	15.0	4.1	4.0	59.8	3.9	5.0	4.1
2	Preferred Complete Laying Ration	11.6	15.5	15.0	4.9	4.0	57.0	4.2	5.0	6.8
2	Preferred Growing Feed	10.9	20.4	17.5	4.9	4.5	50.1	5.8	6.0	7.9
1	Preferred Laying Mash	10.5	21.1	20.0	5.2	4.5	46.6	6.7	7.0	9.9
2	Preferred Starting Feed	12.0	19.4	18.5	4.9	4.0	52.0	4.3	5.0	7.4
2	Woods Dairy Ration	11.6	21.9	20.0	4.3	4.0	48.0	8.3	10.0	5.9
	J. Younge Grain Co.									
1	Peko Malt Sprouts	9.0	27.7	24.0	1.6	0.5	41.1	14.4	13.0	6.2

[21]Phosphoric acid 7.15

Feeds Not Conforming to Guarantees

(Shortages of less than one per cent in protein or fat or an excess of less than one per cent in fiber are not listed)

Samples Collected	Samples Not Conforming to Guarantee	Manufacturer and Brand	Protein Deficiency Per Cent	Fat Deficiency Per Cent	Fiber Excess Per Cent
		Arcady Farms Milling Co.			
1	1	Arcady Growing Mash	—	—	1.4
3	1	Arcady Laying Mash	—	—	1.1
		E. R. Bacon Grain Co.			
3	2	Bacon's Gluten Feed	1.4	—	—
		Bacon's Gluten Feed	1.3	—	—
		Coles Feed & Grain Co.			
2	1	Fortune Producer Mash	—	—	1.4
		Colfax Packing Co.			
3	1	Colpak 50% Meat and Bone Scrap	—	1.6	—
		Dailey Mills, Inc.			
6	1	Dailey's Egg Producer Mash	2.8	—	—
1	1	Dailey's Special 20% Dairy Ration	1.6	—	—
		Delaware Mills, Inc.			
4	1	Indian Sweet 20% Dairy Feed	1.0	—	—
		Frank Diauto			
1	1	Diauto's Special Egg Mash	1.5	—	—
		J. L. Dunnell & Son			
2	2	Full Value Mixed Feed	—	—	1.2
		Full Value Mixed Feed	—	—	1.7
		Elmore Milling Co., Inc.			
2	1	Granger 20% Dairy Ration	—	1.2	—
		Fernando Valley Milling & Supply Co.			
2	1	Alfalfa Leaf Meal Ideal Poultry Greens	—	—	1.5
		Goode Grain Co.			
2	2	Goode Laying Mash. Mass. Formula (1940 registration)	—	—	1.2
		Goode Laying Mash. Mass. Formula (1940 registration)	—	—	2.6
		Great Atlantic & Pacific Tea Co.			
2	1	Daily-Growth Chick Starter	—	—	1.4
		D. Harbeck & Sons			
2	2	Welcome Turkey Growing Mash	1.0	—	—
		Welcome Turkey Growing Mash	1.1	—	—
		Horvitz Grain Co.			
2	1	Mak-M-Lay Laying Mash	1.9	—	—
		Humphreys-Godwin Co.			
3	1	Bull Brand Prime 43% Protein Cottonseed Meal	4.0	—	—
		Jaquith & Co.			
2	2	Starting Feed	—	—	2.6
		Starting Feed	—	—	2.6
		Kasco Mills, Inc.			
3	1	Kasco Sweet 16% Dairy Feed	1.4	—	—
		Maine Fish Meal Co.			
2	1	Maine Vitamin D Fish Meal	1.1	—	—
		Maritime Milling Co., Inc.			
1	1	B-B Calf Starter Ration	3.0	—	—
		Middlesex County Farm Bureau Association			
3	3	Farm Bureau Turkey Breeder Mash	2.0	—	—
		Farm Bureau Turkey Breeder Mash	3.3	—	—
		Farm Bureau Turkey Breeder Mash	2.1	—	—

Feeds Not Conforming to Guarantees—Concluded

(Shortages of less than one per cent in protein or fat or an excess of less than one per cent in fiber are not listed)

Samples Collected	Samples Not Conforming to Guarantee	Manufacturer and Brand	Protein Deficiency Per Cent	Fat Deficiency Per Cent	Fiber Excess Per Cent
		Geo. Q Moon & Co., Inc.			
1	1	Moon's Complete Laying Mash	—	—	3.1
1	1	Moon's Stock Feed	—	—	1.4
		Jas. F. Morse & Co.			
1	1	Morse's 50% Meat & Bone Scraps	2.1	—	
		National Lead Co., and John T. Lewis & Bros. Co.			
3	1	32% Old Process Linseed Meal	1.2	—	—
		New England Retail Grain Dealers Cooperative Association, Inc.			
2	1	New England Quality Fitting Ration	1.5	—	—
		Pecos Valley Alfalfa Mill Co.			
1	1	Velvet Brand Alfalfa Meal	1.1	—	4.9
		Maurice Pincoffs Co.			
1	1	Pinco Brand 43% Protein Cotton Seed Meal	2.7	—	—
		Quaker Oats Co.			
1	1	Ful-O-Pep Laying Mash	1.1	—	—
2	1	Quaker 24% Protein Dairy Feed	2.2	—	—
4	1	Quaker 20% Protein Dairy Feed	1.5	—	—
2	1	Quaker 16% Protein Dairy Feed	1.4	—	—
		Saunders Mills, Inc.			
2	1	Alfalfa Leaf Meal	4.2	—	7.8
1	1	Velvet Brand 20 Alfalfa Meal	3.3	—	6.0
		Schoeneck Farms, Inc.			
4	1	Schoenecks Super-Green Dehydrated Alfalfa Meal	—	—	3.0
		Joseph E. Seagram & Sons, Inc.			
1	1	Seagram's Corn Distillers Dried Grains	2.5	—	—
		Stratton & Co.			
2	1	Stratton's "24" Stock Feed	—	—	1.7
		Tremaine Alfalfa Ranch & Milling Co., Inc.			
2	1	Arizona Brand Alfalfa Leaf Meal	3.5	—	2.1
2	1	Tremaine Brand Alfalfa Meal	1.7	—	3.0
		Jacob Trinley & Sons			
2	1	Limerick Stock Feed	—	—	2.2
		Unity Feeds, Inc.			
2	1	Unity Stock Feed	—	1.4	—
		Arthur Ventura Grain Co.			
2	1	Every Day Dairy	1.1	—	—
2	1	Ventura Grower	—	—	1.0
2	1	Ventura Laying Mash	1.0	—	—
		H. K. Webster Co.			
3	1	Blue Seal "18" Dairy Ration	1.2	—	—
3	1	Blue Seal Fleshing Pellets	—	—	1.2
1	1	Blue Seal Laying Mash	1.9	—	—
2	1	Blue Seal Stock Feed	—	—	1.8
3	1	Blue Seal Succulent Feed	—	—	1.3
		J. Younge Grain Co.			
1	1	Peko Malt Sprouts	—	—	1.4

CERTIFIED INGREDIENTS

Allied Mills, Inc.

Economy 20% Dairy Feed
Soybean oil meal, cottonseed meal, yellow corn meal, corn distillers' dried grains, brewers' dried grains, corn gluten feed, ground oats, wheat bran, cane molasses, 1.5% ground limestone, 0.03% steamed bone meal, 0.03% iron oxide, 1% iodized salt.

Sugarine 20% Dairy Feed
Corn distillers' dried grains, brewers' dried grains, soybean oil meal, corn gluten feed, cottonseed meal, corn meal, wheat bran, ground corn and wheat screenings, oat mill feed (oat hulls, oat shorts, oat middlings), cane molasses, 1.5% ground limestone, 0.3% steamed bone meal, 0.03% iron oxide, 1% iodized salt.

Wayne All Mash Poultry Ration
Animal liver meal, riboflavin concentrate, fish meal, dried skimmed milk, dehydrated alfalfa meal, soybean oil meal, meat scraps, corn gluten meal, wheat standard middlings, corn gluten feed, fine ground oats, wheat bran, yellow corn meal, 0.05% manganese sulphate, 3.6% ground limestone, 0.05% iron oxide, 0.25% iodized salt, fortified sardine oil.

Wayne Chick Starter
Animal liver meal, riboflavin concentrate, fish meal, dried skimmed milk, dehydrated alfalfa meal, soybean oil meal, meat scraps, corn gluten meal, wheat standard middlings, fine ground oats, wheat bran, yellow corn meal, 0.03% manganese sulphate, 1.8% ground limestone, 0.03% iron oxide, 0.15% iodized salt, fortified sardine oil.

Wayne Chick and Broiler Ration
Animal liver meal, riboflavin concentrate, fish meal, dried skimmed milk, dehydrated alfalfa meal, soybean oil meal, meat scraps, corn gluten meal, wheat standard middlings, fine ground oats, wheat bran, yellow corn meal, 0.03% manganese sulphate, 1.8% ground limestone, 0.03% iron oxide, 0.15% iodized salt, fortified sardine oil.

Wayne Egg & Breeder Mash
Animal liver meal, riboflavin concentrate, fish meal, dried skimmed milk, dehydrated alfalfa meal, soybean oil meal, meat scraps, corn gluten meal, wheat standard middlings, corn gluten feed, fine ground oats, wheat bran, yellow corn meal, 0.04% manganese sulphate, 2.7% ground limestone, 0.04% iron oxide, 0.2% iodized salt, fortified sardine oil.

Wayne Flushing Mash
Dried whey, fish meal, soybean oil meal, meat scraps, wheat standard middlings, wheat bran, yellow corn meal, 0.03% manganese sulphate, 1.8% ground limestone, 0.03% iron oxide, 0.15% iodized salt.

Wayne Growing Mash
Animal liver meal, riboflavin concentrate, fish meal, dried skimmed milk, dehydrated alfalfa meal, soybean oil meal, meat scraps, corn gluten meal, wheat standard middlings, fine ground oats, wheat bran, yellow corn meal, 0.04% manganese sulphate, 2.7% ground limestone, 0.04% iron oxide, 0.2% iodized salt, fortified sardine oil.

Wayne Laying Mash
Fish meal, dried skimmed milk, dehydrated alfalfa meal, soybean oil meal, meat scraps, corn gluten meal, wheat standard middlings, corn gluten feed, fine ground oats, wheat bran, yellow corn meal, 0.04% manganese sulphate, 2.7% ground limestone, 0.04% iron oxide, 0.2% iodized salt, fortified sardine oil.

Wayne 26% Mash Supplement
Animal liver meal, riboflavin concentrate, fish meal, dried skimmed milk, dehydrated alfalfa meal, soybean oil meal, meat scraps, corn gluten meal, wheat standard middlings, corn gluten feed, wheat bran, 0.06% manganese sulphate, 4.5% ground limestone, 0.06% iron oxide, 0.3% iodized salt, fortified sardine oil.

Wayne Poultry Developer
Fish meal, dried skimmed milk, dehydrated alfalfa meal, soybean oil meal, meat scraps, corn gluten meal, wheat standard middlings, fine ground oats, wheat bran, yellow corn meal, 0.04% manganese sulphate, 2.7% ground limestone, 0.04% iron oxide, 0.2% iodized salt.

Wayne Turkey Growing Mash
Animal liver meal, riboflavin concentrate, fish meal, dried skimmed milk, dehydrated alfalfa meal, soybean oil meal, meat scraps, corn gluten meal, wheat standard middlings, fine ground oats, wheat bran, yellow corn meal, 0.04% manganese sulphate, 2.7% ground limestone, 0.04% iron oxide, 0.2% iodized salt, fortified sardine oil.

Wayne-Amco 20% Dairy Ration
Cottonseed meal, brewers' dried grains, corn distillers' dried grains, ground oats, corn gluten feed, yellow corn meal and hominy meal, soybean oil meal, corn gluten meal, old process linseed oil meal, wheat bran, cane molasses, ground limestone 1.5%, steamed bone meal 0.3%, iron oxide 0.03%, iodized salt 1.0%.

A. P. Ames & Co.

Ames Complete Cycle Ration
Corn meal, wheat middlings, wheat bran, pulverized whole oats, meat scraps, cod fish meal, dried milk, alfalfa leaf meal, calcium carbonate, salt, fortified cod liver oil and manganese sulphate.

Ames Egg Mash
Corn meal, wheat middlings, meat scraps, pulverized whole oats, wheat bran, alfalfa leaf meal, dried milk, cod fish meal, calcium carbonate, salt, fortified cod liver oil and manganese sulphate.

Ames 20% Milk Maker
Gluten, corn meal (and, or hominy), wheat bran, wheat middlings, linseed meal (and, or soy bean oil meal, and, or cotton seed meal), oat feed, calcium carbonate and salt.

Ames Starter & Broiler Ration
Corn meal, wheat middlings, dried skim milk, pulverized whole oats, wheat bran, alfalfa leaf meal, cod fish meal, meat scraps, calcium carbonate, salt, manganese sulphate and fortified cod liver oil.

Arcady Farms Milling Co.

Arcady Growing Mash
Wonderlas (cane molasses, peanut oil meal, o. p. linseed oil meal, soy bean oil meal, corn oil meal), animal liver meal, fish meal, meat scraps, condensed buttermilk, corn gluten feed, corn gluten meal, corn meal, wheat bran, wheat flour middlings, dehydrated alfalfa leaf meal, ground oats, fortified cod liver oil containing 400 units Vitamin D and 3000 units Vitamin A per gram, cold pressed wheat germ oil, bone meal, 1% calcium carbonate from limestone, ½ of 1% salt, 1½ oz. potassium iodide per ton.

Arcady Laying Mash
Wonderlas (cane molasses, peanut oil meal, o. p. linseed oil meal, soy bean oil meal, corn oil meal), animal liver meal, fish meal, meat scraps, condensed buttermilk, oat meal, corn meal, corn gluten feed, corn gluten meal, dehydrated alfalfa leaf meal, fine ground oats, wheat bran, wheat flour middlings, fortified cod liver oil containing 400 units Vitamin D and 3000 units Vitamin A per gram, cold pressed wheat germ oil, bone meal, 1% calcium carbonate from limestone, ½ of 1% salt, 1½ oz. potassium iodide per ton.

Arcady 24% Formula Production Ration
Wheat bran, hominy feed, o. p. linseed oil meal, ground oats, cottonseed meal, corn gluten meal, corn gluten feed, distillers corn dried grains, soy bean oil meal, cane molasses, 1% bone meal, 1% calcium carbonate from limestone, 1% salt.

Arcady 20% Open Formula Production Ration
Wheat bran, hominy feed, o. p linseed oil meal, ground white oats, corn gluten feed, corn gluten meal, cottonseed meal, distillers corn dried grains, cane molasses, 1% bone meal, 1% calcium carbonate from limestone, 1% salt.

Arcady Wonderlas 26% for Poultry
Cane molasses, peanut oil meal, o. p. linseed oil meal, soy bean oil meal, corn oil meal, 2% calcium carbonate from limestone, 2% salt.

E. W. Bailey & Co.

Bailey's 20 Special Dairy Ration
Corn gluten feed, soybean oil meal, cottonseed meal, wheat standard middlings, wheat bran, yellow corn meal, white hominy feed, oat-meal mill by-products (oat middlings, oat hulls, oat shorts), molasses, salt, edible bone meal, calcium carbonate.

Bailey's Favorite Dairy Ration
Corn gluten feed, yellow corn meal, white hominy feed, ground oats, wheat standard middlings, wheat bran, linseed oil meal, cottonseed meal, soybean oil meal, salt, calcium carbonate, edible bone meal, cane molasses.

Bailey's Pennant Brand Complete Grower
Dried skim milk, dried whey, lactoflavin concentrate, fine ground oats, fine ground barley, meat scraps, fish meal, soybean oil meal, wheat standard middlings, wheat bran, yellow corn meal, dehydrated alfalfa meal, salt, calcium carbonate, charcoal, manganese sulphate, fortified A and D feeding oil.

Bailey's Pennant Brand Complete Layer
Dried skim milk, dried whey, lactoflavin concentrate, ground oats, ground barley, meat scraps, fish meal, soybean oil meal, wheat standard middlings, wheat bran, yellow corn meal, dehydrated alfalfa meal, salt, calcium carbonate, charcoal, manganese sulphate, fortified A and D feeding oil.

Bailey's Pennant Brand Laying Mash
Dried skim milk, dried milk albumen, fine ground oats, fine ground barley, meat scraps, fishmeal, blood flour, soybean oil meal, wheat reddog flour, wheat standard middlings, wheat bran, yellow corn meal, corn gluten feed, dehydrated alfalfa meal, locust bean meal, rice polishings, salt, calcium carbonate, bone meal, charcoal, potassium iodide, manganese sulphate, fortified A and D feeding oil, wheat germ oil.

Bailey's Pennant Brand Laying Pellets
Dried skim milk, dried whey, lactoflavin concentrate, pulverized oats, fine ground barley, meat scraps, fish meal, soybean oil meal, wheat standard middlings, wheat bran, yellow corn meal, cane molasses, dehydrated alfalfa meal, salt, calcium carbonate, charcoal, manganese sulphate, fortified A and D feeding oil.

Barber & Bennett, Inc.

Big Ben 24% Dairy Feed
Linseed oil meal, soybean oil meal, cottonseed meal, brewers' dried grains, wheat bran, hominy feed or corn meal, ground screenings from wheat, corn, oats & barley, cane molasses, calcium carbonate, iodized salt.

Big Ben 20% Dairy Feed
Linseed oil meal, soybean oil meal, cottonseed meal, brewers' dried grains, wheat bran, hominy feed or corn meal, ground heavy barley, ground screenings from wheat, corn, oats & barley, cane molasses, calcium carbonate, iodized salt.

Fort Orange Broiler Mash
Dried skim milk, meat scraps, dried whey, alfalfa leaf meal, corn meal, pulverized heavy oats, soybean oil meal, wheat bran (may contain mill run screenings), wheat middlings, calcium carbonate, iodized salt, manganese sulphate, fortified cod liver oil containing 3000 USP Vitamin A and 400 AOAC Vitamin D units per gram.

Fort Orange 24% Dairy Feed
Ground heavy oats, ground heavy barley, hominy feed or corn meal, linseed oil meal, soybean oil meal, cottonseed meal, corn distillers' grains, brewers' dried grains, corn gluten feed, wheat bran (may contain mill run screenings), cane molasses, calcium carbonate, steamed bone meal, iodized salt.

Fort Orange 20% Dairy Feed
Ground heavy oats, ground heavy barley, hominy feed or corn meal, linseed oil meal, soybean oil meal, cottonseed meal, corn distillers' grains, brewers' dried grains, corn gluten feed, wheat bran (may contain mill run screenings), dried beet pulp, cane molasses, calcium carbonate, steamed bone meal, iodized salt.

Fort Orange Golden Test Ration
Crushed heavy oats, corn meal or hominy, corn distillers' grains, wheat bran, dried beet pulp, linseed oil meal (pea size), soybean oil meal (pea size), corn gluten feed, cane molasses, steamed bone meal, iodized salt.

Fort Orange Laying Mash
Dried skim milk, meat scraps, fish meal, dehydrated alfalfa meal, alfalfa leaf meal, corn meal, pulverized heavy oats, ground heavy barley, soybean oil meal, wheat bran (may contain mill run screenings), wheat flour middlings, steamed bone meal, calcium carbonate, iodized salt, manganese sulphate, fortified sardine oil & fortified cod liver oil containing 3000 USP Vitamin A and 400 AOAC Vitamin D units per gram.

Beacon Milling Co., Inc.

Auburn Dairy Feed
Corn gluten feed, old process linseed oil meal, soy bean oil meal, ground oats, corn meal, ground grain screenings, cottonseed meal, wheat bran, ground barley, corn distillers dried grains, feeding molasses, 1% salt, 1% steamed bone meal.

Beacon Sweet "24"
Old process linseed oil meal, soy bean oil meal, corn gluten meal, cottonseed meal, corn gluten feed, corn distillers dried grains, wheat bran, wheat middlings, ground oats, ground barley, feeding molasses, 1% salt, 1% calcium carbonate, 1% steamed bone meal.

Beacon Sweet "20"
Old process linseed oil meal, soy bean oil meal, corn distillers dried grains, cottonseed meal, wheat bran, wheat middlings, corn gluten meal, corn gluten feed, ground barley, corn meal, ground oats, feeding molasses, 1% salt, 1% steamed bone meal.

Beacon "16"
Old process linseed oil meal, cottonseed meal, corn distillers dried grains, soy bean oil meal, corn gluten feed, corn meal, wheat bran, wheat middlings, crushed oats, ground barley, feeding molasses, 1% salt, 1% steamed bone meal.

Beacon Battery Growing Ration
Dried skimmilk (feeding), liver meal, fish meal, meat scrap, dehydrated alfalfa leaf meal, pulverized heavy oats, pulverized heavy barley, wheat bran, wheat flour middlings, corn meal, wheat germ meal, riboflavin concentrate, fine charcoal, ½% fine salt, fortified cod liver oil, 2% calcium carbonate, anhydrous manganese sulphate 45 p.p.m.

Beacon Battery Laying Ration
Dried skimmilk (feeding), liver meal, fish meal, meat scrap, dehydrated alfalfa leaf meal, pulverized heavy oats, pulverized heavy barley, wheat bran, wheat flour middlings, corn meal, wheat germ meal, riboflavin concentrate, fine charcoal, ½% fine salt, fortified cod liver oil, 2% calcium carbonate, anhydrous manganese sulphate 45 p.p.m.

Beacon Breeders Mash
Dried skimmilk (feeding), liver meal, meat scrap, fish meal, dehydrated alfalfa leaf meal, corn meal, pulverized heavy oats, pulverized heavy barley, wheat bran, wheat flour middlings, wheat germ meal, riboflavin concentrate, fortified cod liver oil, ½% fine salt, 3% calcium carbonate, anhydrous manganese sulphate 70 p.p.m.

Beacon Broiler Feed
Dried skimmilk (feeding), liver meal, meat scrap, fish meal, ground yellow corn, pulverized heavy oats, wheat bran, wheat red dog, wheat germ meal, corn gluten meal, dehydrated alfalfa leaf meal, riboflavin concentrate, fortified cod liver oil, 2½% calcium carbonate, ½% salt, anhydrous manganese sulphate 35 p.p.m.

Beacon C-C Pellets
Dried skimmilk (feeding), ground yellow corn, liquid petrolatum, sulphur sublimatum, pulverized heavy barley, wheat bran, fortified cod liver oil, ½% salt.

Beacon Complete Starting Ration
Dried skimmilk (feeding), liver meal, meat scrap, fish meal, ground yellow corn, riboflavin concentrate, pulverized heavy oats, wheat bran, wheat red dog, wheat germ meal, corn gluten meal, dehydrated alfalfa leaf meal, fortified cod liver oil, 2% calcium carbonate. ½% salt, anhydrous manganese sulphate 35 p.p.m.

Beacon "22" Egg Mash
Dried skimmilk (feeding), liver meal, meat scrap, fish meal, pulverized heavy barley, pulverized heavy oats, corn meal, dehydrated alfalfa leaf meal, wheat bran, wheat flour middlings, wheat germ meal, riboflavin concentrate, fortified cod liver oil, 3% calcium carbonate, ½% fine salt, anhydrous manganese sulphate 70 p.p.m.

Beacon Fleshing Pellets
Dried skimmilk (feeding), liver meal, pulverized heavy oats, pulverized heavy barley, dehydrated alfalfa leaf meal, wheat low grade flour, corn meal, corn oil meal, wheat germ meal, riboflavin concentrate, fortified cod liver oil, 2½% calcium carbonate, 1% salt, anhydrous manganese sulphate 70 p.p.m.

Beacon "16" Growing Mash
Dried skimmilk (feeding), liver meal, fish meal, meat scrap, pulverized heavy oats, corn meal, pulverized heavy barley, wheat bran, wheat flour middlings, dehydrated alfalfa leaf meal, wheat germ meal, riboflavin concentrate, fortified cod liver oil, 2% calcium carbonate, ½% salt, anhydrous manganese sulphate 70 p.p.m.

Beacon "20" Laying Mash
Dried skimmilk (feeding), liver meal, fish meal, meat scrap, corn meal, dehydrated alfalfa leaf meal, wheat bran, wheat flour middlings, pulverized heavy barley, pulverized heavy oats, wheat germ meal, riboflavin concentrate, fortified cod liver oil, 3% calcium carbonate, ½% salt, anhydrous manganese sulphate 70 p.p.m.

Beacon Test Cow Ration
Old process linseed oil meal, cottonseed meal, corn distillers dried grains, soy bean oil meal, corn gluten feed, corn meal, wheat bran, crushed oats, crushed barley, feeding molasses, 1% salt, 1% steamed bone meal.

Beacon Turkey Fitting Ration
Old process linseed oil meal, soy bean oil meal, corn gluten meal, cut alfalfa, crushed barley, cracked corn, crimped oats, feeding molasses, 1% salt.

Beacon Turkey Growing Feed
Dried skimmilk (feeding), liver meal, dehydrated alfalfa leaf meal, meat scrap, fish meal, wheat bran, wheat flour middlings, wheat red dog, corn gluten meal, soy bean oil meal, pulverized heavy oats, pulverized heavy barley, corn meal, wheat germ meal, riboflavin concentrate, fortified cod liver oil, 4% calcium carbonate, ½% salt, 1% protozyme (an enzyme supplying product derived from biochemically processed cereals), anhydrous manganese sulphate 70 p.p.m.

Beacon Turkey Starter
Dried skimmilk (feeding), liver meal, meat scrap, fish meal, dehydrated alfalfa leaf meal, wheat bran, wheat red dog, corn gluten meal, soy bean oil meal, pulverized heavy barley, ground yellow corn, pulverized heavy oats, wheat germ meal, riboflavin concentrate, fortified cod liver oil, 3% calcium carbonate, ½% salt, 1% protozyme (an enzyme supplying product derived from biochemically processed cereals), anhydrous manganese sulphate 45 p.p.m.

Cayuga "16"
Old process linseed oil meal, cottonseed meal, gluten feed, ground oats, ground barley, corn meal, wheat bran, wheat middlings, soy bean oil meal, feeding molasses, ground grain screenings, 1% salt, 1% steamed bone meal.

Berkshire Coal & Grain Co., Inc.

Berkshire Hills Sweet Dairy Feed
Wheat bran, cottonseed meal, gluten feed, linseed oil meal, corn meal, ground oats, brewers grain, cane molasses, calcium carbonate and salt.

Green Mountain Dairy Ration
Wheat bran, cottonseed meal, corn gluten feed, linseed oil meal, corn meal, ground oats and barley, calcium carbonate and salt.

Green Mountain Laying Mash
Wheat bran, wheat middlings, linseed oil meal, corn meal, fine ground oats, alfalfa meal, meat scraps, bone meal, fish meal, dried skim milk, calcium carbonate, salt, Nopco XX concentrated cod liver oil

"Gro Fast" Berkshire All Mash Complete Chick Starter and Grower
Wheat bran, wheat flour middlings, corn meal, oatmeal, linseed oil meal, alfalfa leaf meal, meat scraps, bone meal, dried buttermilk, dried skim milk, calcium carbonate, salt, Nopco XX concentrated cod liver oil.

Borden Grain Co.

Borden's Dairy Feed
Wheat bran, wheat middlings, corn meal (or hominy), gluten meal, gluten feed, cottonseed meal, soy bean oil meal, linseed oil meal, calcium carbonate, iodine, bone meal, salt.

Borden's Laying Mash
Corn meal, wheat bran, wheat middlings, ground oat meal, dried milk, dried whey, lactoflavin concentrate, alfalfa leaf meal, fish meal, meat scrap, soy bean oil meal, cod liver oil, calcium carbonate, manganese, iodine, salt.

Borden's Starter and Growing Feed
Corn meal, wheat bran, wheat middlings, ground oat meal, alfalfa leaf meal, soy bean oil meal, meat scrap, fish meal, gluten meal, dried milk, dried whey, lactoflavin concentrate, cod liver oil, calcium carbonate, manganese, iodine, bone meal, salt.

George B. Brown Corporation

Brown's Dairy Feed
Wheat bran, hominy feed, oat feed, cotton seed meal, corn meal, distillers grains, o. p. linseed meal, corn gluten feed, molasses, calcium carbonate, salt, bone meal.

Brown's Egg Mash
Corn meal, wheat middlings, wheat bran, ground oats, meat scraps, fish meal, dried milk, leaf alfalfa meal, charcoal, calcium carbonate, salt and Nopco XX cod liver oil.

Community Feed Stores

Community-20 Dairy Ration
Corn distillers dried grains, 41% cotton seed meal, soya bean meal, corn gluten feed, hominy or yellow corn meal, pure ground oats, pure wheat bran, molasses, iodized salt, calcium carbonate.

Community Laying Mash
Greenmelk (dehydrated cereal grasses preserved in condensed buttermilk), yellow corn meal, white hominy, pulverized oats, pure wheat bran, gluten feed, wheat middlings, choice meat scraps 50%, pure fish meal, soya bean meal, dried skim milk, alfalfa meal, salt, cod liver oil, oyster shell meal, manganese sulphate, Produlac (yeastified ingredient of corn distillers grains, dried).

Hilltop-20 Dairy Ration
41% Cotton seed meal, soya bean meal, corn gluten feed, hominy or yellow corn meal, Vim oat mill feed, pure wheat bran, corn distillers dried grains, cane molasses, calcium carbonate, iodized salt.

Cover Grain & Feed Co.

C & P Complete Egg Ration
Dried milk, meat scraps, Vitadine, corn meal, wheat bran, pulverized oats, malt flour, hominy feed, wheat middlings, pulverized barley, egg yolk, alfalfa leaf meal, salt, fish meal, calcium carbonate, soy-bean meal, cod liver oil, yeast, potassium iodide.

C & P Grade A Laying Mash
Dried milk, meat scraps, fish meal, corn meal, wheat bran, wheat middlings, pulverized oats, soybean meal, alfalfa leaf meal, linseed meal, Vitadine, salt, calcium carbonate, potassium iodide, and Exadol.

C & P Growing Mash
Dried milk, meat scraps, fish meal, pulverized oats, corn meal, wheat bran, wheat middlings, alfalfa leaf meal, soybean meal, Vitadine, hominy feed, salt, bone meal, potassium iodide, calcium carbonate, and Exadol.

C & P Own 20 Dairy Ration
Corn meal, gluten feed, salt, ground oats, hominy feed, cotton seed meal, wheat bran, soybean meal, wheat middlings, calcium carbonate.

C & P Starter & Broiler Ration
Dried milk, meat scraps, fish meal, ground hulled oats, soybean meal, corn meal, wheat bran, wheat red dog flour, wheat middlings, pulverized oats, Vitadine, alfalfa leaf meal, salt, bone meal, potassium iodide, calcium carbonate, and Exadol.

Chas. M. Cox Co.

Energy 20 Dairy Ration
Soybean oil meal, cottonseed meal, corn gluten feed, brewers' dried grains, yellow corn meal, hominy feed, ground oats, ground barley, wheat bran, wheat standard middlings, cane molasses, calcium carbonate and salt.

Hygrade 24 Milk Ration
Old process linseed meal, soybean oil meal, cottonseed meal, corn gluten meal, corn gluten feed, brewers' dried grains, yellow corn meal, hominy feed, ground oats, ground barley, wheat bran, wheat standard middlings, cane molasses, calcium carbonate and salt.

Utility 20 Dairy Ration
Old process linseed meal, soybean oil meal, cottonseed meal, corn gluten feed, brewers' dried grains, yellow corn meal, hominy feed, ground oats, ground barley, oat mill feed (oat hulls, oat shorts and oat middlings), wheat bran, wheat standard middlings, cane molasses, calcium carbonate and salt.

Wirthmore Breeder Pellets
Flavin concentrate, fortified cod liver oil, D-activated animal sterol(Vitamin D), dried skimmed milk, dried whey, liver meal, meat scraps, fish meal, soybean oil meal, dehydrated alfalfa meal, yellow corn meal, ground wheat, wheat bran, wheat standard middlings, ground oats, ground barley, calcium carbonate, manganese sulphate and salt.

Wirthmore Complete Chick Starter and Broiler Ration
Flavin concentrate, fortified cod liver oil, dried skimmed milk, dried whey, meat scraps, fish meal, soybean oil meal, corn gluten meal, dehydrated alfalfa meal, yellow corn meal, wheat bran, wheat standard middlings, pulverized oats, ground oat groats, calcium carbonate, manganese sulphate and salt.

Wirthmore 20 Dairy Ration
Old process linseed meal, soybean oil meal, cottonseed meal, corn gluten meal, corn gluten feed, corn distillers' dried grains, yellow corn meal, ground oats, ground barley, wheat bran, wheat standard middlings, cane molasses, steamed bone meal and salt.

Wirthmore 16 Dairy Ration
Old process linseed meal, soybean oil meal, corn gluten meal, corn gluten feed, corn distillers' dried grains, yellow corn meal, hominy feed, crimped oats, ground oats, ground barley, wheat bran, wheat standard middlings, cane molasses, steamed bone meal, calcium carbonate and salt.

Wirthmore Finishing Pellets
Dried skimmed milk, meat scraps, soybean oil meal, dehydrated alfalfa meal, yellow corn meal, wheat standard middlings, wheat red dog, pulverized oats, pulverized barley, calcium carbonate and salt.

Wirthmore Record Ration
Old process linseed meal, soybean oil meal, corn gluten meal, corn distillers' dried grains, yellow corn meal, hominy feed, crimped oats, ground oats, ground barley, dried beet pulp, wheat bran, wheat standard middlings, cane molasses, fish meal, steamed bone meal and salt.

Wirthmore Special Broiler Feed
Flavin concentrate, fortified cod liver oil, dried skimmed milk, dried whey, meat scraps, soybean oil meal, corn gluten meal, dehydrated alfalfa meal, yellow corn meal, wheat bran, wheat standard middlings, ground oats, ground barley, calcium carbonate, manganese sulphate and salt.

Wirthmore Special Egg Mash
Fortified cod liver oil, D-activated animal sterol (Vitamin D), meat scraps, fish meal, soybean oil meal, corn gluten meal, dehydrated alfalfa meal, yellow corn meal, wheat bran, wheat standard middlings, ground oats, ground barley, calcium carbonate, manganese sulphate and salt.

Wirthmore Turkey Growing Ration (or Pellets)
Flavin concentrate, fortified cod liver oil, D-activated animal sterol (Vitamin D), dried skimmed milk, dried whey, meat scraps, fish meal, soybean oil meal, corn gluten meal, dehydrated alfalfa meal, yellow corn meal, wheat bran, wheat standard middlings, ground oats, ground barley, calcium carbonate, manganese sulphate and salt.

Dailey Mills, Inc.

Dailey's Egg Producer Mash
Dried skim milk (feeding), dried whey, cod liver oil, flavin concentrate, fish meal, meat scraps, alfalfa leaf meal, ground whole oats, ground barley, soya bean oil meal, wheat bran, wheat middlings, wheat red dog, corn meal, calcium carbonate, linseed oil meal, .0125% manganese sulphate, steamed bone meal, salt.

Dailey's 20% Milk Producer
Soya bean oil meal, cotton seed meal, corn oil meal, o. p. linseed oil meal, corn distillers' dried grains, ground barley, dried brewers' grains, malt sprouts, babassu oil meal, ground oats, corn meal, hominy feed, corn gluten feed, corn gluten meal, wheat bran, wheat middlings, molasses, steamed bone meal, calcium carbonate, iodized salt.

Dailey's Special 20% Dairy Ration
Corn gluten meal, corn gluten feed, soya bean oil meal, ground barley, cottonseed meal, corn oil meal, brewers' dried grains, babassu oil meal, corn meal, malt sprouts, wheat bran, hominy, wheat middlings, screenings, linseed oil meal, ground oats, molasses, steamed bone meal, calcium carbonate, iodized salt.

Dailey's Special Growing Mash
Dried skim milk (feeding), dried whey, flavin concentrate, cod liver oil, meat scraps, fish meal, alfalfa leaf meal, corn gluten meal, linseed oil meal, soya bean oil meal, wheat bran, wheat flour middlings, wheat red dog, ground whole oats, ground barley, corn meal, calcium carbonate, .0125% manganese sulphate, salt.

Dailey's "Super" 20% Dairy Ration
Dried beet pulp, corn meal, hominy, ground barley, crimped oats, soya bean oil meal, o. p. linseed oil meal, corn gluten meal, corn oil meal, corn gluten feed, wheat bran, wheat middlings, iodized salt, cottonseed meal, calcium carbonate, steamed bone meal, molasses.

Delaware Mills, Inc.

Delaware Complete Egg Mash
Cod liver oil, dried skim milk, dried whey, meat scrap, fish meal, dehydrated alfalfa meal, soybean oil meal, corn gluten feed, wheat bran, wheat middlings, corn meal, ground oats, ground barley, ground wheat, calcium carbonate, salt, potassium iodide and manganese.

Delaware 16% Growing Mash
Vitamin A and D fish oil, dried skim milk, dried whey, meat scrap, corn gluten feed, bone meal, soybean oil meal, dehydrated alfalfa meal, wheat bran, wheat middlings, yellow corn meal, ground barley, pulverized oats, calcium carbonate, salt, potassium iodide, manganese.

Delaware 19% Laying Mash
Vitamin A and D fish oil, dried skim milk, dried whey, meat scrap, bone meal, soybean oil meal, corn gluten feed, dehydrated alfalfa meal, wheat bran, wheat middlings, yellow corn meal, ground barley, pulverized oats, linseed oil meal, calcium carbonate, salt, potassium iodide, manganese.

Delaware Starter and Broiler Ration
Cod liver oil, dried skim milk, meat scrap, fish meal, bone meal, dehydrated alfalfa leaf meal, corn meal, wheat bran, wheat middlings, wheat reddog, oatmeal, soybean oil meal, corn gluten feed, calcium carbonate, salt, potassium iodide, manganese, flavin concentrate.

Delaware Sweet 20% Dairy Feed
Cane molasses, linseed oil meal, corn gluten feed, corn gluten meal, cottonseed meal, soybean oil meal, corn distillers grains, peanut oil meal, babassu oil meal, wheat bran, wheat middlings, hominy feed, ground oats, ground barley, calcium carbonate, salt, and potassium iodide.

Frank Diauto

Diauto's Complete Broiler Ration
Pulverized ground oats, feeding oat meal, corn meal, bran, red dog, 50% scraps, dried milk, alfalfa meal, cod liver oil, fish meal, salt, oyster shell meal, soy bean meal, manganese sulphate.

Diauto's Complete Laying Ration
Meal, bran, flour middlings, ground oats, milk, fish meal, 45% scraps, oyster shell meal, cod liver oil, salt, di-calcium phosphate, ground wheat, feeding oat meal, alfalfa meal, manganese sulphate.

Diauto's Dairy Ration
Gluten feed, corn meal, ground oats, bran, linseed meal, cotton seed meal, salt, middlings.

Diauto's Fancy Chick Growing Mash
Bran, middlings, pulverized ground oats, feeding oat meal, 50% scraps, dried milk, oyster shell meal, alfalfa meal, fish meal, salt, cod liver oil, corn meal, manganese sulphate.

Diauto's Special Egg Mash
Linseed meal, cod liver oil, meal, middlings, ground oats, feeding oat meal, oyster shell meal, 50% scraps, fish meal, milk, soy bean meal, ground barley, alfalfa meal, salt, bran, manganese sulphate.

F. Diehl & Son, Inc.

Diehl's Dairy Feed
Bran, brewers grains, cottonseed meal, gluten, linseed meal, meal or hominy, oat meal mill by-products, ground oats, salt, cattle bone, calcite flour, soya bean.

Diehl's Dry Mash
Alfalfa, bran, cattle bone, charcoal, diamond gluten, calcite flour, linseed meal, salt, meal, middlings, red dog, fish scraps, meat scraps, ground oats, dried milk, cottonseed, cod liver oil, soya bean.

Dietrich & Gambrill, Inc.

All Purpose Complete Ration (or Pellets)
Ground corn, pulverized oats, wheat flour middlings, wheat bran, alfalfa leaf meal, dried milk, dried whey, lactoflavin concentrate, meat scrap, fish meal, soybean oil meal, steamed bone meal, 1% calcium carbonate, 1% salt, Vitamin A & D feeding oil, .0002% potassium iodide, .012% manganese sulphate.

D & G Breeder Mash (or Pellets)
Wheat bran, wheat middlings, yellow corn meal, pulverized oats, alfalfa leaf meal, fish meal, meat scrap, dried milk, dried whey, lactoflavin concentrate, Vitamin A & D feeding oil, 1% salt, .0002% potassium iodide, .012% manganese sulphate, soybean oil meal, 2% calcium carbonate, bone meal.

D & G Broiler Mash (or Pellets)
Pulverized oats, wheat bran, wheat flour middlings, alfalfa leaf meal, yellow corn meal, fish meal, meat scrap, dried milk, dried whey, lactoflavin concentrate, soybean oil meal, gluten meal, Vitamin A & D feeding oil, bone meal, salt, 1% calcium carbonate, .0002% potassium iodide, .012% manganese sulphate.

D & G Fleshing Mash (or Pellets)
Soybean oil meal, corn meal, meat scrap, alfalfa meal, pulverized oats, pulverized barley, reddog flour, wheat middlings, corn oil meal, dried milk, dried whey, lactoflavin concentrate, Vitamin A & D feeding oil, bone meal, 1% calcium carbonate, 1% salt, .012% manganese sulphate, .0002% potassium iodide.

D & G Poultry Conditioning Ration (or Pellets)
Cracked wheat, fine cracked corn, corn meal, reddog flour, pulverized oats, wheat bran, alfalfa leaf meal, dried milk, dried whey, lactoflavin concentrate, fish meal, meat scrap, soybean oil meal, grit, bone meal, calcium carbonate, salt, mineral oil, peanut oil, Vitamin A & D feeding oil, .0002% potassium iodide, .012% manganese sulphate.

Frederick Growing Mash (or Pellets)
Wheat middlings, wheat bran, pulverized oats, corn feed meal, gluten feed, fish meal, ground barley, soybean oil meal, meat scrap, dried milk, dried whey, lactoflavin concentrate, alfalfa leaf meal, bone meal, 2% calcium carbonate, 1% salt, .0002% potassium iodide, .012% manganese sulphate, Vitamin A & D feeding oil.

Frederick Laying Mash (or Pellets)
Wheat bran, wheat middlings, corn feed meal, pulverized oats, ground barley, gluten meal, meat scrap, fish meal, alfalfa leaf meal, soybean oil meal, bone meal, 2% calcium carbonate, 1% salt, dried milk, dried whey, lactoflavin concentrate, .0002% potassium iodide, Vitamin A & D feeding oil, .012% manganese sulphate.

Gambrill's Chick Starter (or Pellets)
Oat meal, corn meal, alfalfa leaf meal, wheat flour middlings, wheat bran, pulverized oats, soybean oil meal, fish meal, meat scrap, dried milk, dried whey, lactoflavin concentrate, Vitamin A & D feeding oil, bone meal, 2% calcium carbonate, 1% salt, .0002% potassium iodide, .012% manganese sulphate.

Pen Mar 20% Dairy Feed
Gluten feed, cottonseed meal, linseed oil meal, soybean oil meal, dried brewers grains, ground oats, corn feed meal, wheat bran, wheat middlings, molasses, 1% calcium carbonate, 1% bone meal, 1% salt, .0002% potassium iodide, corn distillers grains.

J. L. Dunnell & Son

Dunnell's Sweetened Dairy Ration
Corn meal, gluten feed, Vim oat feed, bran, linseed oil meal, cottonseed meal, molasses, salt, bone meal, calcium carbonate.

Excel 20 per cent Dairy Ration
Corn meal, gluten feed, cottonseed meal, wheat bran, ground oats, salt, bone meal, calcium carbonate, linseed oil meal.

Excel Mash
Corn meal, gluten feed, wheat bran, ground oats, reddog, fish scraps, dried milk, lime, salt and beef scraps.

East Bridgewater Farmers' Exchange

Exchange Dairy Feed
Old process linseed meal, cottonseed meal, corn gluten meal, corn gluten feed, corn distillers' dried grains, yellow corn meal or hominy feed, ground oats, dried beet pulp, soybean oil meal, wheat bran, wheat standard middlings, brewers dried grains, steamed bone meal, cane molasses, salt.

Exchange Growing Feed
Fortified cod liver oil, dried skimmed milk, meat scraps, fish meal, alfalfa leaf meal, yellow corn meal, wheat bran, wheat standard middlings, soybean oil meal, ground oats, ground barley, calcium carbonate, manganese carbonate, salt.

Exchange Mash Feed
Fortified cod liver oil, dried skimmed milk, meat scraps, fish meal, alfalfa leaf meal, yellow corn meal, wheat bran, wheat standard middlings, soybean oil meal, ground oats, ground barley, calcium carbonate, manganese carbonate, salt.

Eastern Grain Co.

Eastern 24% Dairy Ration Sweetened
Old process linseed meal, soybean oil meal, cottonseed meal, corn gluten meal, corn gluten feed, corn distillers' dried grains, brewers' dried grains, yellow corn meal, ground oats, ground barley, wheat bran, wheat standard middlings, cane molasses, calcium carbonate, salt.

Eastern 20% Dairy Ration Sweetened
Old process linseed meal, soybean oil meal, cottonseed meal, corn gluten meal, corn gluten feed, corn distillers' dried grains, brewers' dried grains, yellow corn meal, ground oats, ground barley, wheat bran, wheat standard middlings, cane molasses, calcium carbonate, salt.

Eastern States Farmers' Exchange

Eastern States All-Mash Breeder (Mash and Pellets)
Yellow corn meal, wheat bran, wheat flour middlings, ground oats, 50 per cent protein meat scraps, 58 per cent protein fish meal, alfalfa leaf meal, ground barley, cane molasses, 41 per cent protein soybean oil meal, oyster shell meal, corn gluten meal, dicalcium phosphate, iodized salt, fortified sardine oil with 1 per cent wheat germ oil, manganese sulphate, lactoflavin supplement (dried whey, dried skimmed milk, soybean oil meal and lactoflavin concentrate).

Eastern States All-Mash Developer (Mash and Pellets)
Yellow corn meal, wheat bran, wheat flour middlings, ground oats, ground barley, 41 per cent protein soybean oil meal, 50 per cent protein meat scraps, alfalfa leaf meal, cane molasses, corn gluten meal, dried whey, oyster shell meal, 58 per cent protein fish meal, wheat germ middlings, iodized salt, dicalcium phosphate, fortified sardine oil, manganese sulphate.

Eastern States Breeder Mash (Mash and Pellets)
Yellow corn meal, ground oats, wheat flour middlings, wheat bran, 50 per cent protein meat scraps, 58 per cent protein fish meal, alfalfa leaf meal, cane molasses, ground barley, 41 per cent protein soybean oil meal, oyster shell meal, corn gluten meal, dicalcium phosphate, iodized salt, fortified sardine oil with 1 per cent wheat germ oil, manganese sulphate, lactoflavin supplement (dried whey, dried skimmed milk, soybean oil meal and lactoflavin concentrate.

Eastern States Developer (Mash and Pellets)
Wheat bran, ground oats, yellow corn meal, ground barley, wheat flour middlings, 41 per cent protein soybean oil meal, 50 per cent protein meat scraps, alfalfa leaf meal, dried whey, cane molasses, corn gluten meal, 58 per cent protein fish meal, oyster shell meal, wheat germ middlings, iodized salt, dicalcium phosphate, fortified sardine oil, manganese sulphate.

Eastern States Egg Mash (Mash and Pellets)
Wheat bran, yellow corn meal, ground oats, wheat flour middlings, 50 per cent protein meat scraps, ground barley, cane molasses, 41 per cent protein soybean oil meal, 58 per cent protein fish meal, alfalfa leaf meal, oyster shell meal, corn gluten meal, iodized salt, fortified sardine oil, manganese sulphate.

Eastern States Fulpail Dairy Ration
Wheat bran, 41 per cent protein soybean oil meal, corn distillers' dried grains, ground oats, yellow corn feed meal, cane molasses, 20 per cent protein coconut oil meal, corn gluten feed, ground barley, 37 per cent protein old process linseed oil meal, babassu kernel oil meal, 41 per cent protein cottonseed meal prime quality, wheat germ middlings, iodized salt, dicalcium phosphate, calcium carbonate.

Eastern States Highland 20 Dairy Ration
41 Per cent protein soybean oil meal, brewers' dried grains, corn gluten feed, oat mill feed (oat hulls, oat shorts and oat middlings), cane molasses, wheat standard middlings, corn distillers' dried grains, 20 per cent protein coconut oil meal, babassu kernel oil meal, wheat bran, hominy feed, ground barley, wheat germ middlings, iodized salt, dicalcium phosphate, calcium carbonate.

Eastern States Highland 16 Dairy Ration
Wheat standard middlings, hominy feed, brewers' dried grains, oat mill feed (oat hulls, oat shorts and oat middlings), cane molasses, wheat bran, corn distillers' dried grains, 20 per cent protein coconut oil meal, corn gluten feed, ground barley, 41 per cent protein soybean oil meal, babassu kernel oil meal, wheat germ middlings, iodized salt, dicalcium phosphate, calcium carbonate.

Eastern States Milkmore Dairy Ration
41 Per cent protein soybean , meal, corn distillers' dried grains, wheat bran, cane molasses, ground oats, 41 per cent protein cottonseed meal, prime quality, 20 percent protein coconut oil meal, yellow corn feed meal, 37 per cent protein old process linseed oil meal, corn gluten feed, babassu kernel oil meal, wheat germ middlings, calcium carbonate, iodized salt, dicalcium phosphate.

Eastern States Sixteen Dairy Ration
Yellow corn feed meal, wheat bran, ground oats, corn distillers' dried grains, cane molasses, 20 per cent protein coconut oil meal, 41 per cent protein soybean oil meal, ground barley, corn gluten feed, 37 per cent protein old process linseed oil meal, babassu kernel oil meal, wheat germ middlings, iodized salt, dicalcium phosphate, calcium carbonate.

Eastern States Starting & Broiler Ration (Mash and Pellets)
Yellow corn meal, wheat flour middlings, wheat bran, ground oat groats, 50 per cent protein meat scraps, alfalfa leaf meal, 41 per cent protein soybean oil meal, 58 per cent protein fish meal, cane molasses, corn gluten meal, dried whey, dried skimmed milk, oyster shell meal, wheat germ middlings, iodized salt, dicalcium phosphate, fortified sardine oil, manganese sulphate.

Eastern States Turkey-Fat (Mash and Pellets)
Yellow corn meal, wheat bran, ground oats, wheat flour middlings, 41 per cent protein soybean oil meal, corn gluten meal, 50 per cent protein meat scraps, alfalfa leaf meal, dried skimmed milk, cane molasses, oyster shell meal, iodized salt.

Eastern States Turkey-Grow (Mash and Pellets)
Yellow corn meal, wheat bran, wheat flour middlings, 41 per cent protein soybean oil meal, corn gluten meal, ground oats, alfalfa leaf meal, 50 per cent protein meat scraps, 58 per cent protein fish meal, ground oat groats, cane molasses, dried skimmed milk, dried whey, oyster shell meal, dicalcium phosphate, iodized salt, fortified sardine oil, manganese sulphate.

Eastern States Turkey-Start (Mash and Pellets)
Yellow corn meal, 41 per cent protein soybean oil meal, wheat flour middlings, wheat bran, corn gluten meal, ground oat groats, 58 per cent protein fish meal, alfalfa leaf meal, 50 per cent protein meat scraps, cane molasses, dried whey, dried skimmed milk, oyster shell meal, iodized salt, dicalcium phosphate, fortified sardine oil, manganese sulphate.

M. W. Ellis

The Ellis Dairy Feed
Corn meal, wheat middlings, wheat bran, gluten meal, hominy feed, gluten feed, corn distillers grains, cottonseed meal, oil meal, ground oats, calcite flour, salt and edible bone meal.

The Ellis Poultry Mash
Wheat bran, wheat middlings, hominy feed, gluten, corn meal, rolled oats or feeding oatmeal, alfalfa leaf meal, cod liver oil, beef scraps, dried skim milk or buttermilk, edible bone meal, salt, charcoal and calcite flour.

The Ellis Special Dairy Feed
Hominy feed, wheat middlings, wheat bran, gluten meal, gluten feed, cottonseed meal, Sugared Vim feed, alfalfa meal, calcite flour, salt.

Elmore Milling Co., Inc.

Elmore Chixsaver
Dried skim milk, dried buttermilk, flavin concentrate, wheat flour middlings, wheat bran, corn meal, dehydrated alfalfa leaf meal, oat flour, meat & bone meal, fish meal, cod liver oil, cod liver meal, corn gluten meal, soybean oil meal, manganese sulphate, oyster shell flour, fine table salt.

Elmore Complete Layer and Breeder
Dehydrated alfalfa leaf meal, cod liver oil, corn meal, fish meal, wheat middlings, dried skim milk, flavin concentrate, pulverized heavy oats, meat scraps, wheat bran (may contain mill run screenings), cod liver meal, ground barley, soybean oil meal, gluten meal, manganese sulphate, oyster shell flour, salt.

Elmore Complete Starter-Broiler
Corn gluten meal, yellow corn meal, wheat bran, wheat middlings, oat meal flour, meat and bone meal, dried buttermilk, dehydrated alfalfa leaf meal, fish meal, soybean oil meal, flavin concentrate, dried skim milk, cod liver oil, manganese sulphate, oyster shell flour, salt.

Elmore Egg Mash
Dried skim milk, meat meal, second cea r wheat flour, pure ground oats, wheat middlings, corn meal (No. 2 yellow), wheat bran, dehydrated alfalfa leaf meal, fish meal, bone meal, cod liver oil, soybean oil meal, flavin concentrate, manganese sulphate, oyster shell flour, salt.

Elmore Fleshing Pellets
Corn meal, corn oil meal, pulverized heavy oats, standard wheat middlings, low grade wheat flour, corn gluten meal, soybean oil meal, dried skim milk, cod liver oil, meat scraps, salt.

Elmore Growing Mash
Dried buttermilk, flavin concentrate, meat meal, bone meal, wheat middlings, wheat bran, dehydrated alfalfa leaf meal, corn meal, pulverized oats, corn gluten meal, fish meal, cod liver oil, ground barley, soybean oil meal, manganese sulphate, oyster shell flour, salt.

Elmore M. A. C. Laying Mash
Dehydrated alfalfa leaf meal, wheat bran (may contain mill run screenings), corn meal, fish meal, wheat middlings, dried skim milk, ground heavy oats, meat scraps, cod liver oil, soybean oil meal, flavin concentrate, manganese sulphate, oyster shell flour, salt.

Elmore Milk Grains "Twenty"
Wheat bran, dried brewers' grains, barley malt sprouts, cotton seed meal, soybean oil meal, hominy feed, cane molasses, corn distillers grains, corn gluten feed, linseed oil meal, ground heavy oats, babassu oil meal, calcium carbonate, salt.

Elmore Turkey Finisher (Fattener)
Yellow corn meal, wheat bran, wheat middlings, ground oats, ground barley, dehydrated alfalfa leaf meal, soybean oil meal, corn gluten meal, dried skim milk, meat scraps, manganese sulphate, oyster shell flour, salt.

Elmore Turkey Growing Mash
Yellow corn meal, wheat bran, wheat middlings, ground heavy oats, ground barley, dehydrated alfalfa leaf meal, soybean oil meal, corn gluten meal, dried skim milk, flavin concentrate, meat scraps, fish meal, manganese sulphate, oyster shell flour, cod liver oil, salt.

Elmore Turkey Starting Mash
Yellow corn meal, wheat bran, wheat middlings, pulverized heavy oats, wheat germ meal, alfalfa leaf meal, soybean oil meal, corn gluten meal, dried skim milk, flavin concentrate, meat scraps, fish meal, cod liver oil, cod liver meal, manganese sulphate, oyster shell flour, salt.

Granger 20% Dairy Ration
Wheat bran, corn gluten feed, corn meal or hominy feed, soybean oil meal, cane molasses, ground oats, dried brewers' grains, barley malt sprouts, linseed oil meal, calcium carbonate, salt.

John W. Eshelman & Sons

Eshelman Conestoga 20 Dairy Feed
Cottonseed meal, wheat bran, cane molasses, corn gluten feed, brewers dried grains, corn distillers dried grains, o. p. soybean oil meal, o. p. linseed oil meal, reground grain screenings from wheat, 1% bone meal, 1% calcium carbonate, 1% salt.

Eshelman Pennsy Laying Mash
Corn meal, wheat middlings, meat scrap, wheat bran, ground oats, dehydrated alfalfa meal, o. p. soybean oil meal, cane molasses, fish meal, corn gluten feed, o .p. linseed oil meal, 2½% calcium carbonate, 1/80 % manganese sulphate, ½% salt.

George A. Fair

Fair Square Dairy Feed
Yellow corn meal, wheat bran, wheat middlings, corn gluten feed, linseed oil meal, cottonseed meal, crimped oats, bone meal, salt, calcium carbonate and feeding molasses.

Fair Square Growing Mash
Yellow corn meal, wheat bran, wheat middlings, fish meal, beef scraps, ground barley, alfalfa leaf meal, ground pulverized oats, dried skim milk, soybean oil meal, calcium carbonate, manganese sulfate, dicalcium phosphate, salt and fortified cod liver oil.

Fair Square Laying Mash
Yellow corn meal, fish meal, bee scraps, dried skim milk, alfalfa leaf meal, wheat bran, wheat middlings, soybean oil meal, grfound pulverized oats, calcium carbonate, manganese sulfate, salt, dicalcium phosphate and fortified cod liver oil.

Fair Square Starter and Broiler Mash
Yellow corn meal, wheat bran, wheat middlings, ground pulverized oats, fish meal, beef scraps, alfalfa leaf meal, dried skim milk, calcium carbonate, manganese sulfate, salt, dicalcium phosphate and fortified cod liver oil.

Farm Service Division, General Mills, Inc.

Farm Service Fleshing Pellets
Corn meal, wheat middlings, wheat bran, soy bean oil meal, ground barley, corn gluten feed, ground oats, dehydrated alfalfa leaf meal, dried whey, dried milk, fish meal, meat scraps, calcium carbonate, salt, manganese dioxide, Vitamin A and D feeding oil.

Farm Service Laying Mash
Wheat bran, yellow corn meal, wheat standard middlings, ground barley, meat and bone scraps, soy bean oil meal, fish meal, alfalfa meal, flavin concentrate, dried skim milk, dried whey, ground oats, Vitamin A and D feeding oil, 2.8% limestone, ½% salt, .01% manganese dioxide.

N E C Laying Mash
Corn meal, wheat bran, wheat middlings, ground oats, alfalfa meal, soy bean oil meal, meat scraps, fish meal, calcium carbonate, salt, Vitamin A and D feeding oil, manganese dioxide, dried skim milk.

Service Mash
Corn meal, wheat bran, wheat middlings, ground oats, condensed buttermilk, alfalfa meal, soy bean oil meal, corn gluten feed, meat scraps, fish meal, calcium carbonate, salt, Vitamin A and D feeding oil.

Service Ration
Corn meal, hominy, cottonseed meal, linseed oil meal, corn gluten feed, wheat bran, wheat middlings, ground oats, soy bean oil meal, bone meal, calcium carbonate, salt, (with or without molasses)

First National Stores, Inc.

Henfield Egg Mash
Fortified cod liver oil, meat scraps, fish meal, dried skim milk, alfalfa meal, pulverized oats, hominy or corn meal, wheat middlings, wheat bran, wheat flour middlings, corn gluten feed, soya bean oil meal, 1% steamed bone meal, 1% calcium carbonate, ½ of 1% salt.

Flory Milling Co., Inc.

Flor-Eta Complete Laying Mash
Dried skimmilk, dried whey, lacto flavin concentrate, fish meal, meat scrap, soybean oil meal, corn gluten feed, corn gluten meal, dehydrated alfalfa meal, wheat bran, wheat middlings, yellow corn meal, pulverized barley, pulverized oats, Vitamin A & D oil, cane molasses, essentia :minerals (calcium carbonate, calcium phosphate, manganese sulphate, potassium iodide, salt).

Flory 24% Dairy Feed
Cottonseed meal, soybean oil meal, corn gluten meal, linseed oil meal, corn gluten feed, copra oil meal, corn distillers grains, brewers dried grains, malt sprouts, wheat bran, crimped oats, ground barley, yellow corn meal, cane molasses, calcium carbonate, potassium iodide, salt, bone meal.

Flory Starter Mash
Liver meal, dried skimmilk, dried whey, lacto flavin concentrate, fish meal, meat scrap, soybean oil meal, corn gluten meal, dehydrated alfalfa leaf meal, wheat bran, wheat flour middlings, ground yellow corn, ground oatmeal, pulverized heavy barley, pulverized heavy oats, fortified Vitamin A & D oil, essential minerals (calcium carbonate, calcium phosphate, manganese sulphate, potassium iodide, salt)

Golden Egg Growing Mash
Dried skimmilk, dried whey, lacto flavin concentrate, fish meal, meat scrap, soybean oil meal, corn gluten feed, corn gluten meal, dehydrated alfalfa meal, wheat bran, wheat middlings, yellow corn meal, pulverized heavy barley, pulverized oats, Vitamin A & D oil, cane molasses, essential minerals (calcium carbonate, calcium phosphate, manganese sulphate, potassium iodide, salt).

Golden Egg Laying Mash
Dried skimmilk, dried whey, lacto flavin concentrate, fish meal, meat scrap, soybean oil meal, corn gluten feed, corn gluten meal, dehydrated alfalfa meal ,wheat bran, wheat middlings, yellow corn meal, pulverized heavy barley, pulverized oats, Vitamin A & D oil, cane molasses, essential minerals (calcium carbonate, calcium phosphate, manganese sulphate, potassium iodide, salt).

Golden Egg Starter & Broiler
Dried skimmilk, dried whey, lacto flavin concentrate, meat scrap, fish meal, soybean oil meal, corn gluten feed, corn gluten meal, dehydrated alfalfa meal, wheat bran, wheat middlings, yellow corn meal, pulverized heavy barley, pulverized oats, Vitamin A & D oil, cane molasses, essential minerals (calcium carbonate, calcium phosphate, manganese sulphate, potassium iodide, salt).

National 24% Dairy Feed
Soybean oil meal, linseed oil meal, corn distillers grains, corn gluten feed, corn gluten meal, copra oil meal, brewers dried grains, malt sprouts, wheat bran, reground grain screenings (from wheat, corn, oats, barley, flax & rye), oat mill feed (oat middlings, oat shorts, oat hulls), cane molasses, calcium carbonate, salt.

Sunray Laying Mash
Dried skimmilk, dried whey, lacto flavin concentrate, meat scrap, soybean oil meal, corn gluten feed, corn gluten meal, dehydrated alfalfa meal, wheat bran, wheat middlings, yellow corn meal, pulverized barley, pulverized oats, Vitamin A & D oil, cane molasses, essential minerals (calcium carbonate, calcium phosphate, manganese sulphate, potassium iodide, salt).

Fred A. Fountain, Inc.

Fountain's Breeder Mash
Dry skim milk, meat scraps, white fish meal, alfalfa leaf meal, fine ground heavy oats, bran, wheat flour middlings, yellow corn meal, corn gluten meal, calcium carbonate, table salt, fortified cod liver oil, anhydrous manganese sulphate.

Fountain's Growing Mash
Dry buttermilk or dry skim milk, meat scraps, alfalfa leaf meal, yellow corn meal, second clear flour, fine ground heavy oats, bran, middlings, soy bean oil meal, calcium carbonate, table salt, fortified cod liver oil, manganese sulphate.

Fountain's Laying Mash
Dry skim milk, meat scraps, white fish meal, alfalfa leaf meal, fine ground heavy oats, wheat flour middlings, bran, middlings, yellow corn meal, gluten, calcium carbonate, table salt, fortified cod liver oil, anhydrous manganese sulphate.

Fountain's Starting and Broiler Ration
Dried skim milk, meat scraps, white fish meal, alfalfa leaf meal, yellow corn meal, wheat flour middlings, fine ground heavy oats, bran, middlings, corn gluten meal, soy bean oil meal, calcium carbonate, table salt, fortified cod liver oil, anhydrous manganese sulphate.

J. B. Garland & Son, Inc.

Garland 20% Dairy Ration
Soybean oil meal, brewers dried grains, linseed oil meal, cottonseed meal, corn gluten meal, corn gluten feed, distillers dried grains, malt sprouts, wheat bran, wheat middlings, corn meal, ground oats, fish meal, molasses, calcium carbonate and salt.

Royal Complete Starter & Grower Ration
Flavin concentrate, fortified cod liver oil, dried skim milk, dehydrated alfalfa meal, soybean oil meal, fish meal, meat scraps, corn gluten meal, wheat bran, wheat middlings, ground oats, ground barley, corn meal, calcium carbonate, manganese sulphate and salt.

Royal 20% Dairy Ration
Distillers dried grains, corn gluten feed, soybean oil meal, linseed oil meal, wheat and wheat bran processed, cottonseed meal, ground corn, ground oats, molasses, calcium carbonate and salt.

W. K. Gilmore & Sons, Inc.

Conference Mash
Yellow corn meal, standard wheat bran, wheat flour middlings, pure ground oats, meat scraps 50%, pure fish meal, alfalfa leaf meal, dried skim milk, calcite flour, cod liver oil, dicalcium phosphate, salt, soy bean meal.

Goode Grain Co.

Goode Laying Mash. Mass. Formula.
Yellow corn meal, soy bean meal, wheat middlings, wheat bran, ground oats, meat scraps, fish meal, dried skim or buttermilk, alfalfa meal, calcium carbonate, salt, cod liver oil, Vitidine (a mineral concentrate).

Goode Starting & Growing Mash. New England Formula.
Yellow corn meal, soy bean meal, wheat middlings, wheat bran, ground oats, meat scraps, fish meal, dried skim or buttermilk, alfalfa meal, calcium carbonate, salt, cod liver oil. With or without Vitidine (a mineral concentrate).

Grand Union Co.

Grand Union 20% Dairy Feed
Soy bean oil meal, dried brewers grains, malt sprouts, wheat bran, cotton seed meal, ground and bolted screenings from wheat, oats, flax, corn and barley, ground and clipped oat by-products, molasses, calcium carbonate from limestone 1¼%, bone meal 1¼%, salt 1%.

Grand Union Laying Mash
Cod liver oil, dried skimmilk, dried buttermilk, meat scraps, soybean oil meal, corn feed meal, corn meal, ground oat meal, wheat standard bran, wheat standard middlings, alfalfa leaf meal, corn gluten feed, 2½% calcium carbonate from limestone, ½% salt, .02% manganese sulphate.

D. H. Grandin Milling Co.

Grandin's 20 Dairy Feed
Cane molasses, cottonseed meal, soybean oil meal, linseed oil meal, corn gluten feed, corn distillers dried grains, wheat bran, wheat middlings, yellow corn meal, hominy feed, ground oats, ground barley, steamed bone meal, calcium carbonate, salt and potassium iodide.

Grandin's Fleshing Pellets
Fortified cod liver oil, dried buttermilk, dried whey, flavin concentrate, meat scraps, fish meal, soybean oil meal, corn gluten feed, wheat red dog, wheat bran, wheat middlings, ground yellow corn, hominy feed, corn germ meal, pulverized oats, ground barley, calcium carbonate, salt, potassium iodide and manganese carbonate.

Grandin's Laying Mash
Fortified cod liver oil, dried buttermilk, dried whey, flavin concentrate, meat scraps, fish meal, soybean oil meal, corn gluten meal, corn gluten feed, dehydrated alfalfa leaf meal, wheat bran, wheat middlings, ground yellow corn, hominy feed, pulverized oats, ground barley, calcium carbonate, salt, potassium iodide, and manganese carbonate.

Grandin's Milk Maker
Dried beet pulp, cottonseed meal, soybean oil meal, linseed oil meal, corn gluten meal, corn gluten feed, corn distillers dried grains, wheat bran, wheat middlings, yellow corn meal, hominy feed, ground oats, ground barley, steamed bone meal, calcium carbonate, salt and potassium iodide.

Money Saver Broiler Mash
Fortified cod liver oil, dried whey, flavin concentrate, meat scraps, soybean oil meal, corn gluten meal, dehydrated alfalfa meal, wheat bran, wheat middlings, yellow corn meal, pulverized oats, ground barley, calcium carbonate, salt, potassium iodide, manganese carbonate, and dried buttermilk.

Great Atlantic & Pacific Tea Co.

Daily-Egg Laying Mash Feed
Corn feed meal, wheat standard middlings, meat and bone scraps, ground barley, soybean oil meal, wheat bran, alfalfa meal, ground oats, fish meal, wheat flour middlings, corn gluten meal, calcium carbonate from limestone 2¾%, dried skimmed milk, old process linseed oil meal, steamed bone meal 1¾%, dried buttermilk, salt ½%, Vitamin A and D feeding oil, manganese sulphate .015%, potassium iodide .0015%.

Daily-Growth Chick Starter
Ground yellow corn, wheat standard middlings, meat and bone scraps, ground oat groats, ground oats, alfalfa leaf meal, dried buttermilk, fish meal, wheat low-grade feed flour, old process linseed oil meal, calcium carbonate from limestone 1%, steamed bone meal ½%, iodized salt ½%, Vitamin A and D feeding oil, manganese sulphate .015%.

Daily-Milk Dairy Feed 16%
Cleaned, ground and bolted screenings from wheat, oats, barley and flax, cane molasses, ground and bolted clipped oat by-product, corn gluten feed, cottonseed meal, wheat bran, soybean oil meal, old process linseed oil meal, corn gluten meal, wheat standard middlings, malt sprouts, calcium carbonate from limestone 1%, iodized salt 1%.

Milky-Way Dairy Feed 24%
Soybean oil meal, wheat standard middlings, corn gluten meal, cane molasses, wheat bran, cottonseed meal, corn gluten feed, ground oats, malt sprouts, brewers dried grains, old process linseed oil meal, corn feed meal, ground barley, calcium carbonate from limestone 1%, iodized salt 1%.

Milky-Way Dairy Feed 20%
Wheat standard middlings, wheat bran, cane molasses, cottonseed meal, soybean oil meal, malt sprouts, corn gluten feed, corn gluten meal, ground barley, old process linseed oil meal, ground oats, brewers dried grains, corn feed meal, calcium carbonate from limestone 1%, iodized salt 1%.

Hales & Hunter Co.

Red Comb Broiler Mash
Ground corn, pulverized oats, wheat bran, wheat standard middlings, corn gluten meal, meat scraps, alfalfa meal, soy bean oil meal, fish meal, dried buttermilk, dried whey, calcium carbonate (ground limestone) 1%, salt 1%, manganese sulphate .0125%, Vitamin A and D feeding oil (containing 3000 Vitamin A units and 400 Vitamin D chick units per gram).

Red Comb Flushing Mash
Ground corn, ground barley, dried whey, wheat bran, dried buttermilk.

Special Red Horn 20% Dairy Feed
Cottonseed meal, linseed oil meal, soy bean oil meal, corn distillers' dried grains, wheat bran, corn gluten feed, corn gluten meal, malt sprouts, whole ground corn, crimped oats, ground and bolted screenings from wheat, barley and kafir corn, clipped oat by-product, molasses, salt 1%, calcium carbonate (ground limestone) 1%, corn germ oil meal, steamed bone meal 1%, potassium iodide .003%, manganese sulphate .0035%.

D. Harbeck & Sons

Crusader All Purpose Mash
Corn meal, bran, wheat middlings, ground oats, ground barley, ground wheat, meat scraps, fish meal, soybean oil meal, corn gluten meal, alfalfa leaf meal, condensed buttermilk, dried skimmed milk, linseed oil meal, charcoal, salt, cod liver oil, maniodized calcite flour.

Welcome Dairy Feed
Bran, beet pulp, cottonseed meal, corn gluten meal, ground oats, hominy or corn feed meal, linseed oil meal, middlings, calcium carbonate, steamed bone meal 1%, salt 1%.

Welcome Growing Mash
Corn meal, wheat bran, flour middlings, ground oats, alfalfa meal, meat scraps, fish meal, condensed buttermilk, dried skimmed milk, ground barley, hominy feed, oil meal, ground wheat, salt, cod liver oil, and maniodized calcite flour.

Welcome Laying Mash
Corn meal, wheat bran, flour middlings, ground oats, meat scraps, fish meal, alfalfa meal, condensed buttermilk, dried skimmed milk, salt, cod liver oil, maniodized calcite flour.

Welcome Starter and Broiler Ration
Corn meal, wheat bran, wheat flour middlings, ground oat groats, or feeding oat meal, dried skim milk or dried buttermilk, alfalfa leaf meal, 60% meat scraps, fish meal, salt, cod liver oil, and maniodized calcite flour.

Welcome Turkey Growing Mash
Corn meal, wheat bran, flour middlings, feeding oat meal, or heavy ground oats, meat scraps, fish meal, alfalfa meal, dried skimmed milk, or condensed buttermilk, maniodized calcite, salt, cod liver oil.

D. B. Hodgkins' Sons

Hodgkins' Dairy Ration
Wheat bran, hominy, ground oats, corn gluten feed, corn meal, cottonseed meal, soy bean meal, linseed meal, beet pulp, brewers grains, corn distillers dried grains, molasses, calcium carbonate and salt.

Hodgkins' Growing Mash
Corn meal, wheat bran, wheat middlings, flour middlings, ground oats, alfalfa meal, dried skim milk, dried produlac, soy bean oil meal, meat scraps, fish meal, oyster shell meal, salt and cod liver oil.

Hodgkins' Poultry Mash
Ground corn, oats, middlings and bran (with screenings not to exceed mill run), corn gluten feed, soy bean meal, corn gluten meal, ground meat scraps, calcium carbonate, dried skim milk or dried buttermilk, dried produlac, dairy salt, fish meal, alfalfa leaf meal and cod liver oil.

Horvitz Grain Co.

Mak-M-Lay Laying Mash
Cod liver oil, wheat bran, corn meal, gluten feed, ground oats, ground barley, red dog, wheat middlings, soybean meal, meat scraps, alfalfa leaf meal, dried skimmilk, calcium carbonate, charcoal, linseed meal, fish meal.

Wantmore Dairy Ration
Hominy feed or corn meal, wheat bran, ground oats, gluten feed & gluten meal, linseed meal, cottonseed meal, wheat middlings, calcium carbonate, salt.

Wantmore Dairy with Beet Pulp
Hominy feed or corn meal, wheat bran, gluten feed & gluten meal, linseed meal, cottonseed meal, wheat middlings, salt, beet pulp, ground oats, calcium carbonate.

Wantmore 24% Sweetened Special Dairy
Soybean oil meal, cottonseed meal, corn gluten feed, corn distillers' dried grains, yellow corn meal or hominy feed, oat mill feed (oat hulls, oat shorts and oat middlings), wheat bran, wheat standard middlings, cane molasses, calcium carbonate, salt, linseed oil meal.

Wantmore 20% Sweetened Special Dairy
Soybean oil meal, cottonseed meal, corn gluten feed, corn distillers' dried grains, yellow corn meal or hominy feed, oat mill feed (oat hulls, oat shorts and oat middlings), wheat bran, wheat standard middlings, cane molasses, calcium carbonate, salt, linseed oil meal.

Jaquith & Co.

Jaquith & Co. Dairy Ration
Wheat bran and middlings, cottonseed meal, oil meal, soya bean meal, salt, gluten feed, alfalfa, ground oats and corn, dried grains, minerals, molasses.

Jaquith & Co., Growing Mash
Ground corn, wheat and oats, soya bean meal, meat and bone meal, salt, dried milk, alfalfa meal, oil meal, vitamin feeding oil.

Jaquith & Co. Laying Mash
Ground corn, wheat and oats, gluten feed, oil meal, meat scraps, dried milk, soya bean meal, alfalfa meal, minerals, vitamin feeding oil.

Jaquith & Co. Starting Feed
Ground corn, oats and wheat, dried milk, salt, alfalfa meal, vitamin feeding oil.

Kasco Mills, Inc.

Apex Complete Grower
Corn meal, pulverized oats, ground barley, wheat bran, wheat middlings, soybean oil meal, linseed oil meal, alfalfa meal, meat scrap, fish meal, bone meal, dried skim milk (feeding), dried whey, riboflavin concentrate, ½ of 1% salt, calcite, tested cod liver oil.

Apex 20% Dairy Ration
Cottonseed meal, corn gluten feed, corn gluten meal, wheat bran, ground wheat screenings, oat mill feed (oat middlings, oat shorts and oat hulls), malt sprouts, dried brewers grains, corn distillers grains, cane molasses, 1% salt, 1% calcite, soybean oil meal.

Apex Growing Mash
Corn meal, pulverized oats, ground barley, wheat bran, wheat middlings, linseed oil meal, soybean oil meal, alfalfa meal, meat scrap, fish meal, bone meal, dried skim milk (feeding), dried whey, riboflavin concentrate, ¾ of 1% salt, calcite, tested cod liver oil.

Beatsall Milk Grains
Wheat bran, wheat middlings, linseed oil meal, corn distillers grains, corn gluten feed, corn gluten meal, cottonseed meal, soybean oil meal, hominy feed, ¾ of 1% salt, 1% calcite, beet pulp, molasses.

Kasco All Mash Laying & Breeding Ration
Corn meal, pulverized oats, ground oatmeal, wheat bran, wheat middlings, wheat reddog, linseed oil meal, soybean oil meal, ground barley, meat scrap, bone meal, fish meal, dried skim milk (feeding), dried whey, riboflavin concentrate, ½ of 1% salt, calcite, tested cod liver oil, alfalfa leaf meal, .0063% manganese sulphate.

Kasco Egg Producer
Wheat bran, wheat middlings, corn meal, linseed oil meal, soybean oil meal, pulverized oats, ground barley, meat scrap, bone meal, fish meal, dried skim milk (feeding), dried whey, riboflavin concentrate, ¾ of 1% salt, calcite, .0125% manganese sulphate, tested cod liver oil, alfalfa meal, ground oatmeal.

Kasco Laying & Breeding Mash
Wheat bran, wheat middlings, wheat reddog, corn meal, linseed oil meal, soybean oil meal, pulverized oats, ground oatmeal, meat scrap, bone meal, fish meal, dried skim milk, dried whey, lactoflavin concentrate, ¾ of 1% salt, calcite, tested cod liver oil, alfalfa leaf meal, .0125% manganese sulphate.

Kasco 20% Milk Maker
Cottonseed meal, linseed oil meal, dried brewers grains, corn distillers grains, corn gluten feed, corn gluten meal, soybean oil meal, corn meal, wheat bran, wheat middlings, ground oats, ground barley, ¾ of 1% salt, 1% calcite, molasses.

Kasco Poultry Flushing Mash
Wheat reddog, ground oatmeal, wheat middlings, wheat bran, corn meal, pulverized oats, meat scrap, fish meal, bone meal, linseed oil meal, soybean oil meal, dried whey, riboflavin concentrate, ½ of 1% salt, tested cod liver oil, calcite, alfalfa leaf meal.

Kasco Sweet 16% Dairy Feed
Wheat bran, corn gluten feed, corn gluten meal, cottonseed meal, soybean oil meal, ground oats, ground barley, ground wheat screenings, corn meal, oat mill feed (oat midds, oat hulls, oat shorts), malt sprouts, dried brewers grains, corn distillers grains, molasses, 1% salt, 1% calcite.

Larrowe Milling Company (Trade Name) of General Mills, Inc.

Larro The Ready Ration for Dairy Cows
Cottonseed meal, yellow corn meal, wheat standard middlings, soybean oil meal, o. p. linseed oil meal, corn gluten feed, corn distillers' dried grains, dried beet pulp, wheat bran, ½% limestone, 1% salt.

Larro Chick Builder
Wheat standard middlings, yellow corn meal, wheat bran, ground barley, corn gluten meal, ground oats, meat and bone scraps, fish meal, alfalfa meal, soybean oil meal, dried skimmed milk, dried whey, flavin concentrate, 2.5% limestone, .5% salt, Vitamin A and D feeding oil (400 A.O.A.C. units of Vitamin D and 4000 U.S.P. units of Vitamin A per gram), .0125% manganese dioxide.

Larro 16 Dairy Feed
Cottonseed meal, corn gluten feed, corn distillers' dried grains, wheat standard middlings, o. p. linseed oil meal, yellow corn meal, dried beet pulp, wheat bran, 1% salt.

Larro Egg Mash
Yellow corn meal, wheat standard middlings, wheat bran, soybean oil meal, ground barley, meat and bone scraps, alfalfa meal, ground oats, fish meal, dried skimmed milk, dried whey, flavin concentrate, 2.5% limestone, .5% salt, Vitamin A and D feeding oil (400 A.O.A.C. units of Vitamin D and 4000 U.S.P. units of Vitamin A per gram), .0125% manganese dioxide.

Mansfield Coal & Grain Co.

Manco 20% Dairy Feed
Dried brewers grains, ground oats, wheat bran, yellow corn meal, 41% cottonseed meal, molasses, 41% soybean meal, corn gluten feed, 32% linseed meal, ground barley, bone meal, and salt.

Manco Growing Mash
Yellow corn meal, wheat bran, wheat flour middlings, ground oats, ground barley, alfalfa leaf meal, 41% soybean meal, dried skim milk, 45% protein meat scraps, 58% protein fish meal, oyster shell meal, dicalcium phosphate, cod liver oil, and salt.

Manco Laying Mash
Wheat standard middlings, yellow corn meal, wheat bran, ground barley, 58% protein fish meal, dried skim milk, 50% protein meat scraps, 41% soybean meal, ground oats, alfalfa meal, corn gluten meal, oyster shell meal or calcium carbonate, cod liver oil or concentrated oil and salt.

Mansfield Milling Co.

Mansfield Chick-Growing Mash
Vitamelk Base, ground yellow corn, wheat middlings, charcoal, wheat bran, meat scraps, alfalfa leaf meal, red dog flour, fish meal, feeding oat meal, soy bean oil meal, 2% calcium carbonate, 1% salt.

Mansfield Chick-Starter
Vitamelk Base, yellow corn meal, wheat middlings, alfalfa leaf meal, meat scraps, ½% salt, pulverized oats, soy bean oil meal, wheat bran, bone meal, 1½% calcium carbonate.

Mansfield Dry Poultry Mash
Vitamelk Base, ground yellow corn, alfalfa meal, wheat bran, meat scraps, wheat middlings, pulverized oats, soybean oil meal, bone meal, corn gluten feed, wheat red dog flour, 2% calcium carbonate, 1% salt.

Mansfield Sweetened "20"
Wheat bran, wheat middlings, dried brewers grains, cotton seed meal, corn gluten feed, corn meal, hominy, linseed oil meal, ground oats, cane molasses, edible bone meal, calcium carbonate, salt.

Maritime Milling Co., Inc.

B-B Complete Laying Ration
Fortified cod liver oil, dried cheese whey, dried buttermilk, dehydrated alfalfa meal, wheat bran, wheat standard middlings, corn meal, pulverized heavy oats, pulverized barley, soya bean oil meal, corn gluten meal, meat and bone meal, calcium carbonate, salt, potassium iodide, and manganese sulphate.

B-B Growing Mash
Fortified cod liver oil, dried cheese whey, dried buttermilk, dehydrated alfalfa meal, wheat bran, wheat standard middlings, ground wheat, corn meal, pulverized heavy oats, pulverized barley, ground oat meal, soya bean oil meal, corn gluten meal, meat and bone meal, fish meal, calcium carbonate, salt, potassium iodide, and manganese sulphate.

B-B Layer & Breeder Mash
Fortified cod liver oil, liver meal, kelp meal, dried cheese whey, dried buttermilk, California alfalfa leaf meal, wheat bran, wheat standard middlings, soya bean oil meal, corn gluten meal, corn meal, pulverized heavy oats, pulverized barley, ground oat meal, meat and bone meal, fish meal, calcium carbonate, salt, potassium iodide and manganese sulphate.

B-B Special Dairy Feed 20% Pro.
Dried brewers grains, corn distillers grains, soya bean oil meal, corn gluten feed, wheat bran, hominy feed, corn meal, molasses, steamed bone meal, calcium carbonate and salt.

B-B Supplemental Pellets for Layers and Breeders
Fortified cod liver oil, liver meal, kelp meal, dried cheese whey, California alfalfa leaf meal, wheat bran, wheat standard middlings, soya bean oil meal, corn meal, pulverized heavy oats, pulverized barley, meat and bone meal, calcium carbonate, salt, potassium iodide, and manganese sulphate.

Sweetened Bull Brand B-B "20" Dairy Ration
Dried brewers grains, corn distillers grains, cotton seed meal, corn gluten feed, soya bean oil meal, o. p. linseed oil meal, hominy feed, corn meal, wheat bran, wheat standard middlings, molasses, steamed bone meal, calcium carbonate, salt and potassium iodide.

Hi-Test Dairy Feed 20% Pro. Sweetened
Dried brewers grains, cotton seed meal, corn gluten feed, soya bean oil meal, hominy feed, ground oats, corn meal, cleaned, pulverized and bolted screenings from wheat, oats, and barley, wheat bran, molasses, steamed bone meal, calcium carbonate and salt.

Marmico 16% Protein Feed Dairy With Molasses
Dried brewers grains, soya bean oil meal, cotton seed meal, corn gluten feed, corn meal, cleaned, pulverized and bolted screenings from wheat, oats, and barley, wheat bran, molasses, steamed bone meal, calcium carbonate and salt.

Middlesex County Farm Bureau Association

Farm Bureau All Mash Developer
Corn meal, wheat bran, standard middlings, ground oats, ground barley, alfalfa leaf meal, soybean oil meal, dried skim milk, meat scraps 50%, manganesed oyster shell meal, salt, fish meal, liver meal, fortified feeding oil.

Farm Bureau All Mash Laying
Yellow corn meal, wheat bran, standard middlings, ground oats, dried skim milk, alfalfa leaf meal, meat scraps 50%, fish meal 58%, oyster shell meal (manganesed), salt, dried liver meal, fortified feeding oil.

Farm Bureau Breeder & Laying Mash 20%
Corn meal, ground oats, standard wheat bran, alfalfa leaf meal, standard gray middlings, meat scraps 50%, liver meal, fish meal 58%, soybean oil meal 41%, powdered milk, powdered whey, manganesed oyster shell meal, salt, fortified feeding oil.

Farm Bureau Dairy Ration 20%
Corn meal, ground oats, standard wheat bran, corn distillers' grains, cottonseed meal 41%, soybean meal 41%, corn gluten feed, linseed oil meal, cane molasses, ground barley, calcium carbonate, salt.

Farm Bureau Dairy Ration 16%
Corn meal, ground oats, standard wheat bran, corn distillers' grains, corn gluten feed, linseed oil meal, ground barley, cane molasses, calcium carbonate, cottonseed meal 41%, soybean oil meal 41%, salt.

Farm Bureau "EF-EF" Dairy Ration 20% (Flexible Formula)
Corn meal or hominy feed, oat mill feed, soybean oil meal 41%, cottonseed meal 41%, corn gluten feed, corn distillers' grains, standard wheat bran, molasses, salt, calcium carbonate, linseed oil meal.

Farm Bureau Laying Mash (No Milk)
Yellow corn meal, ground oats, wheat bran, soybean oil meal, alfalfa leaf meal, standard middlings, meat scraps 50%, fish meal 58%, ground barley, manganesed oyster shell meal, dicalcium phosphate (or bone meal), dried corn solubles, fortified feeding oil, salt.

Farm Bureau Laying Mash 17%
Ground oats, corn meal, wheat bran, alfalfa leaf meal, meat scraps 50%, standard gray middlings, fish meal 58%, dried skim milk, soybean oil meal, manganesed oyster shell meal, salt, fortified feeding oil.

Farm Bureau Starter & Broiler
Yellow corn meal, ground oats, wheat bran, alfalfa leaf meal, soybean oil meal, standard middlings, meat scraps 50%, dried liver meal, fish meal 58%, dried skim milk, dried whey, manganesed oyster shell meal, salt, flour middlings, fortified feeding oil, dicalcium phosphate or bone meal.

Geo. Q. Moon & Co., Inc.

Complete Starter & Broiler Mash
Yellow corn meal, white middlings, wheat bran (with ground screenings not to exceed mill run), pulverized oats, meat scrap, fish meal, dried skim milk (feeding), alfalfa meal, ground limestone, salt, cod liver oil, Vitadine, manganese sulphate, wheat germ oil, feeding oat meal, ground oat groats.

Moon's Baby Chick Starter Mash
Roller corn meal, wheat flour middlings, wheat bran and standard middlings (with ground screenings not to exceed mill run), pulverized oats, alfalfa meal, meat scrap, fish meal, steamed bone meal, dried skim milk (feeding), dried buttermilk (feeding), salt, calcium carbonate, cod liver oil, manganese sulphate, wheat germ oil, V. D. (Vitadine), feeding oat meal, ground oat groats, soybean oil meal.

Moon's Complete Laying Mash
Corn meal, standard middlings, wheat bran (with ground screenings not to exceed mill run), white wheat middlings, meat scrap, dried skim milk (feeding), bone meal, salt, calcium carbonate, alfalfa meal, cod liver oil, soybean oil meal, pulverized oats, manganese sulphate, corn gluten feed, V.D. (Vitadine), wheat germ oil.

Moon's 24% Dairy Ration
Corn gluten feed, corn distillers grains, hominy feed, soybean oil meal, peanut oil meal, o. p. linseed oil meal, cottonseed meal, wheat bran (with ground screenings not to exceed mill run), calcium carbonate, salt, molasses, rye distillers grains, babassu meal, palm kernel meal.

Moon's 20% Dairy Ration with Molasses
Hominy feed, soybean oil meal, corn gluten feed, ground and bolted clipped oat byproduct, rye distillers grains, corn distillers grains, o. p. linseed oil meal, cottonseed meal, wheat bran (with ground screenings not to exceed mill run), calcium carbonate, salt, molasses, ground oats, ground screenings from wheat, ground barley, peanut oil meal, babassu meal, palm kernel meal.

Moon' Laying Mash
Standard middlings, wheat bran (with ground screenings not to exceed mill run), ground barley, meat scrap, fish meal, soybean oil meal, pulverized oats, corn gluten feed, corn meal, wheat flour middlings, hominy feed, alfalfa meal, dried skim milk (feeding), dried buttermilk (feeding), calcium carbonate, salt, cod liver oil, manganese sulphate, Vitadine, wheat germ oil.

Open Formula Dairy Ration
Wheat bran, yellow hominy feed, ground oats, corn gluten feed, cottonseed meal, soybean oil meal, o. p. linseed oil meal, corn distillers dried grains, molasses, dicalcium phosphate, salt.

Special A 16% All Grain Ration
Corn gluten feed, corn distillers grains, rye distillers grains, cottonseed meal, o. p. linseed oil meal, wheat bran, soybean oil meal, peanut oil meal, hominy feed, calcium carbonate, palm kernel meal, babassu meal, molasses, salt.

Special A Dairy 20% Ration
Corn gluten feed, corn distillers grains, rye distillers grains, cottonseed meal, o. p. linseed oil meal, wheat bran (with ground screenings not to exceed mill run), soybean oil meal, peanut oil meal, hominy feed, calcium carbonate, salt, molasses, babassu meal, palm kernel meal.

U. S. 20% Dairy Ration
Tucum meal, corn gluten feed, soybean oil meal, peanut oil meal, wheat bran (with ground screenings not to exceed mill run), ground and bolted clipped oat byproduct, alfalfa meal, cottonseed meal, rye distillers grains, corn distillers grains, calcium carbonate, ground screenings from wheat, salt, molasses, ground barley, murumuru meal, babassu meal, palm kernel meal linseed oil meal.

New England Grain Co.

New England Open Formula 20% Dairy Feed
Linseed oil meal, corn distillers' dried grains, gluten feed, gluten meal, pure wheat bran, corn meal, choice cotton seed meal, wheat middlings, ground oats, cane molasses, cattle bone meal, salt, calcium carbonate.

New England Sterling Laying Mash
Ground corn, wheat & oats, wheat bran, wheat middlings, meat scraps, linseed oil meal, fish meal, alfalfa leaf meal, dried milk, cod liver oil, shell flour, molasses and salt.

New England Retail Grain Dealers Cooperative Association, Inc.

New England Egg Producer
Yellow corn meal, wheat flour middlings, wheat bran, heavy ground oats, ground barley, meat meal, fish meal, choice alfalfa meal, o. p. soybean oil meal, gluten meal, iodized salt, manganese sulphate, calcium carbonate fortified cod liver oil, dried skimmilk and molasses.

New England Quality 20% Dairy Feed
Choice cottonseed meal, o. p. linseed oil meal, gluten feed, 28% corn distillers grains, soybean meal, ground wheat, wheat bran (may contain screenings), standard middlings, heavy ground oats, corn meal or hominy feed, choice malt sprouts, 24% brewers grains, cane molasses, bone charcoal, iron sulphate, iodized salt.

New England Quality 16% Dairy Feed
Corn distillers grains, soybean oil meal, o. p linseed oil meal, corn gluten feed, choice cottonseed meal, ground barley, wheat bran (may contain screenings), ground oats, malt sprouts, corn meal or hominy feed, cane molasses, bone charcoal, iron sulphate, calcium carbonate, iodized salt.

New England Quality Laying Mash
Meat meal, fish meal, skim or buttermilk, dried whey, cod liver oil, yellow corn meal, heavy ground oats, whole ground wheat, ground barley, red dog flour, wheat bran, gluten meal, soybean, alfalfa meal, bone charcoal, iron sulphate, manganese sulphate, calcium carbonate, iodized salt, molasses.

New England Yankee 20% Dairy Ration
Corn distillers grains, choice malt sprouts, corn gluten feed, o. p linseed oil meal, corn feed meal or hominy, wheat bran (may contain screenings), dried brewers grains, choice cottonseed meal, soybean oil meal, cane molasses, iodized salt, calcium carbonate.

New England Yankee Egg Mash
Meat meal, fish meal, soybean oil meal, corn gluten meal, skim or buttermilk, dried whey, o. p. linseed oil meal, yellow corn meal, wheat bran (may contain screenings), pulverized oats, wheat flour middlings, wheat standard middlings, choice alfalfa, ground barley, iodized salt, calcium carbonate, manganese sulphate, USP cod liver oil, steam bone meal and molasses.

New England Yankee Growing Mash
Meat meal, fish meal, corn gluten meal, soybean oil meal, o. p. linseed oil meal, skim or buttermilk, yellow corn meal, pulverized oats, standard bran (may contain screenings), standard middlings, flour middlings, choice alfalfa, steam bone meal, iodized salt, calcium carbonate and cane molasses.

Ogden Grain Co.

"Biddy" Laying Mash
Alfalfa meal, pulverized oats, meat scraps, fish meal, dried skim milk, soybean oil meal, corn meal, ground wheat, wheat bran, wheat middlings (may contain mill run screenings), salt, oyster shell meal, cod liver oil, molasses, potassium iodide, manganese.

Cloverbloom 20% Dairy Feed
Corn gluten feed, cotton seed meal, old process linseed oil meal, soybean oil meal, dried brewers' grains, wheat bran, ground wheat screenings, oat feed (oat hulls, oat shorts, oat middlings), corn meal or hominy, cane molasses, salt, calcium carbonate, potassium iodide

Pilgrim 16% Dairy Feed
Corn meal, ground oats, wheat bran, corn distillers' dried grains, corn gluten feed, ground barley, cotton seed meal, linseed oil meal, soybean oil meal, steamed bone meal, calcium carbonate, salt, molasses, potassium iodide.

Pilgrim Laying Mash
Alfalfa meal, pulverized oats, meat scraps, fish meal, dried skim milk, soybean oil meal, corn meal, ground wheat, wheat bran, wheat middlings (may contain mill run screenings), salt, oyster shell meal, cod liver oil, potassium iodide, manganese, Vitadine.

Thrift 20% Dairy Feed
Soybean oil meal, old process linseed oil meal, corn gluten feed, gluten meal, ground corn, ground oats, ground wheat, cotton seed meal, wheat bran, wheat middlings (may contain mill run screenings), dried brewers grains, molasses, calcium carbonate, salt, potassium iodide.

Thrift Starter & Broiler Ration
Corn meal, gluten meal, soybean oil meal, alfalfa leaf meal, fine ground oats, ground barley, meat scraps, fish meal, wheat bran, standard middlings, cod liver oil, oyster shell meal, salt, potassium iodide, manganese, Vitadine, dried skim milk.

Park & Pollard Co.

Doublex 24% Dairy Ration
Wheat bran, linseed oil meal, brewers dried grains, soybean oil meal, hominy, ground oats, malt sprouts, corn gluten meal, cottonseed meal, corn gluten feed, ground grain screenings from wheat, oats, barley, buckwheat and milo, molasses, calcium carbonate and salt.

Doublex 20% Dairy Ration
Linseed oil meal, corn gluten feed, brewers dried grains, ground oats, corn gluten meal, soybean oil meal, hominy, corn distillers grains, ground barley, wheat bran, malt sprouts, cottonseed meal, ground grain screenings from wheat, oats, barley, buckwheat and milo, molasses, calcium carbonate and salt.

Doublex 16% Dairy Ration
Corn distillers grains, ground oats, ground barley, brewers dried grains, malt sprouts, linseed oil meal, cottonseed meal, ground grain screenings from wheat, oats, barley, buckwheat and milo, hominy, soybean oil meal, corn gluten feed, molasses, calcium carbonate and salt.

Hi-Valu Scratch Feed (Pellets)
Ground: yellow corn, wheat, oats, barley, buckwheat, alfalfa meal, wheat middlings, corn gluten feed, hominy, molasses, calcium carbonate, manganese sulphate and cod liver oil.

Lay or Bust Dry Mash
Dried buttermilk, alfalfa leaf meal, corn gluten meal, fish meal, ground yellow corn, ground barley, meat scrap, linseed oil meal, ground oats, soybean oil meal, wheat bran (may contain mill run wheat screenings), wheat middlings, calcium carbonate, salt, manganese sulphate, vitamin tested cod liver oil.

Manamar Doublex 20% Dairy Ration
Kelp, Pacific Coast fish meal, marine sea shells, linseed oil meal, corn gluten feed, brewers dried grains, ground oats, corn gluten meal, soybean oil meal, hominy, ground barley, corn distillers grains, wheat bran, malt sprouts, cottonseed meal, ground grain screenings from wheat, oats, barley, buckwheat and milo, molasses, calcium carbonate and salt.

Manamar Life Cycle Mash
Kelp, Pacific Coast fish meal, marine sea shells, meat scrap, wheat bran (may contain mill run wheat screenings), wheat middlings, ground yellow corn, soybean oil meal, ground oats, ground barley, alfalfa leaf meal, corn gluten meal, dried buttermilk, manganese sulphate, vitamin tested cod liver oil.

Milkmaid 24% Sweetened Dairy Ration
Corn gluten feed, linseed oil meal, cottonseed meal, ground barley, corn distillers dried grains, soybean oil meal, wheat bran, brewers dried grains, malt sprouts, corn gluten meal, corn meal, molasses, calcium carbonate and salt.

Milkmaid 20% Dairy Ration
Corn gluten feed, linseed oil meal, cottonseed meal, ground barley, corn distillers dried grains, soybean oil meal, ground oats, wheat bran, brewers dried grains, malt sprouts, corn gluten meal, corn meal, cane molasses, calcium carbonate, and salt.

Park & Pollard Chick Starter
Dried buttermilk, ground yellow corn, ground oats, ground barley, oat meal, fish meal, meat scrap, wheat bran, wheat middlings, corn gluten meal, soybean oil meal, alfalfa leaf meal, calcium carbonate, manganese sulphate, salt, vitamin tested cod liver oil.

Park & Pollard Fleshing Pellets
Yellow corn meal, ground barley, ground oats, soybean oil meal, dehydrated alfalfa leaf meal, meat scrap, wheat bran (may contain mill run wheat screenings), wheat middlings, linseed oil meal, gluten feed, molasses, dried buttermilk, calcium carbonate, salt and cod liver oil.

Park & Pollard Growing Feed
Dried buttermilk, alfalfa leaf meal, fish meal, linseed oil meal, ground yellow corn, ground barley, meat scrap, wheat bran (may contain mill run wheat screenings), wheat middlings, ground oats, corn gluten meal, calcium carbonate, salt, manganese sulphate, vitamin tested cod liver oil.

Park & Pollard Layer & Breeder Pellets
Yellow corn meal, ground oats, dried buttermilk, alfalfa leaf meal, wheat bran, meat scrap, corn gluten meal, fish meal, kelp, soybean oil meal, calcium carbonate, salt, manganese sulphate and vitamin tested cod liver oil.

Park & Pollard Starter & Broiler Mash
Ground yellow corn, wheat bran, wheat flour middlings, pulverized oats, ground barley, fish meal, meat scrap, corn gluten meal, soybean oil meal, alfalfa leaf meal, calcium carbonate, manganese sulphate, salt, dried skim milk, vitamin tested cod liver oil.

George H. Parker Grain Co.

Parker's Egg Mash
Yellow corn meal, wheat bran, wheat middlings, ground oats, feeding oat meal, dried skimmed milk, Produlac, meat scraps, fish meal, alfalfa leaf meal, edible bone meal, calcium carbonate, charcoal and salt.

Parker's Growing Mash
Yellow corn meal, wheat bran, wheat middlings, ground barley, pulverized oats, alfalfa leaf meal, meat scraps, fish meal, soy bean meal, dried skimmed milk, Produlac, calcium carbonate, salt, cod liver oil, sardine oil and manganese.

Parker's Special Dairy Ration
Wheat bran, yellow corn meal, hominy, old process linseed meal, oat feed, corn gluten feed, cottonseed meal, molasses, calcium carbonate, steamed bone meal and salt.

Parker's Starter and Broiler Mash
Yellow corn meal, wheat bran, wheat middlings, feeding oat meal, dried skimmed milk, Produlac, soy bean meal, meat scraps, fish meal, alfalfa leaf meal, edible bone meal, calcium carbonate, salt, cod liver oil, sardine oil and manganese.

H. C. Puffer Co.

Egg Em On Complete Egg Mash
Corn meal, wheat middlings, wheat bran, ground barley, ground oats, meat scraps, fish meal, alfalfa meal, soybean meal, corn gluten feed, dried milk, fortified cod liver oil, small percentages of salt, calcium carbonate, and manganese sulphate.

Egg Em On Growing Mash
Corn feed meal, corn gluten feed, ground barley, ground oats, soybean meal, wheat bran, wheat middlings (not exceeding mill run screenings), meat scrap, fish meal, dried milk, alfalfa meal, cod liver oil, salt, calcium carbonate, manganese sulphate.

Egg Em On Laying Mash
Dried milk, fish meal, meat scraps, wheat bran and wheat middlings (not exceeding mill run screenings), corn feed meal, corn gluten feed, ground oats, feeding oatmeal, soybean meal, linseed oilmeal, alfalfa meal, cod liver oil, small percentage salt, calcium carbonate, and manganese sulphate.

Egg Em On Starting Mash
Corn meal, wheat bran, wheat middlings, red dog middlings, ground oat groats, soybean meal, ground barley, dried milk, alfalfa leaf meal, fish meal, meat scraps, cod liver oil, small percentages salt, calcium carbonate, dicalcium phosphate, and manganese sulphate.

Producer Dairy Feed
Linseed oilmeal, cottonseed meal, corn gluten feed, soybean meal, ground oats, corn feed meal or hominy, wheat bran (not exceeding mill run of screenings), wheat middlings, small percentages salt, calcium carbonate, edible bone meal.

Sweetened Producer Dairy Feed
Linseed oilmeal, cottonseed meal, corn gluten feed, corn feed meal or hominy, wheat bran (not exceeding mill run of screenings), oat feed, soybean meal, molasses, small percentages salt, calcium carbonate, and edible bone meal.

Quaker Oats Co.

Ful-O-Pep Chick Starter
Oatmeal, yellow hominy feed, wheat bran, wheat standard middlings, fish meal, liver meal, meat scraps, soybean oil meal, fortified sardine oil, dried whey, dried buttermilk, cane molasses, dehydrated alfalfa meal, dehydrated cereal grass (from wheat, oats, rye, and barley), ¾ of 1% salt.

Ful-O-Pep Crate Fattener
Rolled oats, ground corn, hominy feed, yellow hominy feed, wheat standard middlings, pulverized oats, barley feed, linseed meal, corn oil meal, ground puffed rice, cane molasses, ¾ of 1% salt.

Ful-O-Pep Egg-Breeder Mash
Oatmeal, hominy feed, yellow hominy feed, wheat bran, wheat standard middlings, barley feed, fish meal, liver meal, meat scraps, fortified sardine oil, dried whey, dried buttermilk, cane molasses, dehydrated alfalfa meal, dehydrated cereal grass (from wheat, oats, rye, and barley), ¾ of 1% salt.

Ful-O-Pep Growing Mash
Oatmeal, yellow hominy feed, wheat bran, wheat standard middlings, barley feed, fish meal, liver meal, meat scraps, fortified sardine oil, dried whey, dried buttermilk, cane molasses, dehydrated alfalfa meal, dehydrated cereal grass (from wheat, oats, rye, and barley), ¾ of 1% salt.

Ful-O-Pep Laying Mash
Oatmeal, hominy feed, yellow hominy feed, wheat bran, wheat standard middlings, barley feed, corn gluten meal, pulverized oats, fish meal, liver meal, meat scraps, soybean oil meal, fortified sardine oil, dried buttermilk, cane molasses, dehydrated alfalfa meal, dehydrated cereal grass (from wheat, oats, rye, and barley), ¾ of 1% salt.

Ful-O-Pep Super Greens Pellets
Oatmeal, hominy feed, yellow hominy feed, wheat bran, wheat standard middlings, barley feed, fish meal, liver meal, meat scraps, fortified sardine oil, dried whey, dried buttermilk, cane molasses, dehydrated alfalfa meal, dehydrated cereal grass (from wheat, oats, rye, and barley), ¾ of 1% salt.

Ful-O-Pep Turkey Grower
Oatmeal, hominy feed, yellow hominy feed, wheat bran, wheat standard middlings, barley feed, corn gluten meal, pulverized oats, fish meal, liver meal, meat scraps, soybean oil meal, fortified sardine oil, dried buttermilk, cane molasses, dehydrated alfalfa meal, dehydrated cereal grass (from wheat, oats, rye, and barley), ¾ of 1% salt.

Quaker 24% Protein Dairy Ration
Hominy feed, yellow hominy feed, barley feed, cottonseed meal, corn distillers grains, corn gluten meal, soybean oil meal, linseed meal, wheat bran, wheat standard middlings, oat mill feed (oat hulls, oat shorts, oat middlings), 1% salt, 1% bone meal, cane molasses

Quaker 20% Protein Dairy Ration
Hominy feed, yellow hominy feed, barley feed, corn distillers grains, corn gluten meal, soybean oil meal, linseed meal, wheat bran, wheat standard middlings, oat mill feed (oat hulls, oat shorts, oat middlings), 1% salt, 1% bone meal, cane molasses.

Quaker 16% Protein Dairy Ration
Hominy feed, yellow hominy feed, barley feed, soybean oil meal, linseed meal, corn gluten meal, corn distillers grains, wheat bran, wheat standard middlings, oat mill feed (oat hulls, oat shorts, oat middlings), 1% salt, 1% bone meal, cane molasses.

Ralston Purina Co.

Protena 20% Dairy Feed
Soy bean oil meal, cottonseed meal, corn gluten feed, wheat middlings (standard), alfalfa meal, wheat bran, ground grain screenings (from wheat, corn, oats, barley, kafir), molasses, 2% calcium carbonate (limestone), 1% iodized salt

Purina Chick Growena
Riboflavin concentrate, carotene, cod liver oil, sardine oil, meat scrap, fish meal, soy bean oil meal, wheat germ, dried buttermilk, alfalfa meal, corn meal, dried beet pulp, wheat middlings (grey), wheat bran, 1½% calcium carbonate (limestone), ½% iodized salt.

Purina 24% Cow Chow
Soy bean oil meal, corn gluten feed, linseed meal, cottonseed meal, distillers' corn dried grains, wheat middlings (standard), wheat bran, corn meal, alfalfa meal, molasses. Minerals: 1% salt (sodium chloride), 2% limestone (calcium carbonate), potassium iodide–0.10 grams per 100 pounds of feed.

Purina 20% Cow Chow
Soy bean oil meal, corn gluten feed, linseed meal, crushed oats, cottonseed meal, distillers' corn dried grains, wheat middlings (standard), wheat bran, corn meal, alfalfa meal, molasses. Minerals: 1% steamed bone meal (tri-calcium phosphate), 1% salt (sodium chloride), 1% limestone (calcium carbonate), potassium iodide—0.10 grams per 100 pounds of feed.

Purina 18% Cow Chow
Soy bean oil meal, cottonseed meal, distillers' corn dried grains, corn gluten feed, crushed oats, corn meal, wheat middlings (standard), alfalfa meal, wheat bran, molasses. Minerals: 1% steamed bone meal (tri-calcium phosphate), 1% salt (sodium chloride), 1% limestone (calcium carbonate), potassium iodide—0.10 grams per 100 pounds of feed.

Purina 16% Cow Chow
Soy bean oil meal, corn gluten feed, linseed meal, crushed oats, ground barley, cottonseed meal, distillers' corn dried grains, wheat middlings (standard), wheat bran, corn meal, molasses. Minerals: 1% steamed bone meal (tri-calcium phosphate), 1% salt (sodium chloride), 1% limestone (calcium carbonate), potassium iodide—0.10 grams per 100 pounds of feed.

Purina 14% Cow Chow
Crushed oats, distillers' corn dried grains, linseed meal, corn meal, ground barley, soy bean oil meal, wheat middlings (standard), wheat bran, molasses, 2% calcium carbonate (limestone), 1% iodized salt.

Purina Egg Chow (Complete Ration)
Carotene, meat scrap, ground oats, fish meal, soy bean oil meal, alfalfa meal, dried buttermilk, wheat bran, wheat middlings (standard), dried beet pulp, corn meal, ground barley, corn gluten feed, cod liver oil, sardine oil, ½% iodized salt, 4.5% calcium carbonate (limestone).

Purina Family Flock Chow
Carotene, meat scrap, soy bean oil meal, alfalfa meal, wheat middlings (standard), wheat bran, corn meal, ground barley, corn gluten feed, dried buttermilk, cod liver oil, sardine oil, 4% calcium carbonate (limestone), ½%, iodized salt.

Purina Layena (Complete Ration)
Riboflavin concentrate, carotene, cod liver oil, sardine oil, meat scrap, ground oats, fish meal, soy bean oil meal, alfalfa meal, dried buttermilk, wheat middlings (standard), dried beet pulp, corn meal, ½% iodized salt, 4% calcium carbonate (limestone).

Purina Milk Chow (20%)
Soy bean oil meal, corn gluten feed, crushed oats, cottonseed meal, distillers' corn dried grains, wheat middlings (standard), wheat bran, corn meal, alfalfa meal, molasses, 2% calcium carbonate (limestone), 1% iodized salt.

Purina Turkey-Chicken Fatena Checkers
Ground oats, corn meal, ground barley, meat scrap, dried buttermilk, soy bean oil meal, alfalfa meal, wheat middlings (grey), molasses, 1.5% calcium carbonate (limestone), ½% iodized salt.

Purina Turkey Growena
Riboflavin concentrate, carotene, meat scrap, fish meal, soy bean oil meal, alfalfa meal, dried buttermilk, ground oats, corn meal, wheat middlings (grey), wheat bran, corn gluten meal, 2% calcium carbonate (limestone), ½% iodized salt.

D. F. Riley

Riley's 20% Dairy Ration
Gluten feed, wheat middlings, linseed oil meal (or soy bean meal), 41% cottonseed meal, wheat bran, dried brewer grains, ground oats, corn meal (or hominy), bone meal, molasses, calcium carbonate and salt.

Roy Grain Co.

Roy's Hen Mash
Wheat bran, wheat middlings, pulverized oats, yellow corn meal, meat scraps, fish meal, soybean oil meal, dried milk, dehydrated alfalfa leaf meal, fortified sardine oil, flavin concentrate, ground oats, calcium carbonate, salt and manganese sulfate.

Roy's Starter and Grower
Wheat bran, wheat middlings, pulverized oats, yellow corn meal, meat scraps, fish meal, soybean meal, dried milk, dried whey, dehydrated alfalfa leaf meal, fortified sardine oil, flavin concentrate, ground oats, calcium carbonate, salt and manganese sulfate.

Ryther & Warren Co.

Blue Tag Dairy Ration
41% Cottonseed meal, soy bean oil meal, corn gluten feed, hominy feed (or corn meal), pure wheat bran, wheat middlings, ground oats, corn distillers grains, dried beet pulp, calcium carbonate and salt.

Minot Chick Mash
Corn meal, pure wheat bran, flour middlings, ground oat meal, meat scraps 50% pro., fish meal 60% pro., powdered milk, alfalfa leaf meal, soy bean meal, shell flour, salt, and fortified cod liver oil.

Minot Growing Mash
Corn meal, pure bran, wheat middlings, ground oats, ground barley, corn gluten meal, soy bean oil meal, alfalfa leaf meal, meat scraps, fish meal, powdered milk, shell meal, salt and fortified cod liver oil.

Minot Milk Egg Mash
Corn meal, pure bran, flour middlings, ground oats, meat scraps 50% pro., fish meal 60% pro., alfalfa leaf meal, powdered milk, corn gluten meal, shell flour, salt, and fortified cod liver oil.

C. H. Symmes & Co.

The Ideal Dairy Ration
Wheat middlings, wheat bran, brewers grains, cottonseed meal, linseed meal, gluten meal, gluten feed, corn meal or hominy, molasses, salt, bone meal, calcium carbonate.

Estate of Silas Taft

Taft Special Dairy Ration
Soybean oil meal, cottonseed meal, corn gluten feed, brewers' dried grains, yellow corn meal, hominy feed, ground oats, ground barley, wheat bran, wheat standard middlings, cane molasses, calcium carbonate and salt.

Tioga Mills, Inc.

Tasty Laying Food (Mash or Pellets)
Wheat middlings, wheat bran, soybean oil meal, corn meal, pulverized oats, alfalfa leaf meal, meat and bone scrap, vacuum dried fish meal, dried skim milk, cod liver oil, salt, charcoal, potassium iodide, Colloidaltine (a mineral compound composed of calcium carbonate and the phosphates of calcium, iodine, iron, copper, manganese, sulphur, and 12 other rare minerals, all in colloidal form). (Wheat middlings and wheat bran may contain ground screenings not exceeding mill run.)

Ti-O-Ga 32% Feed
Wheat middlings, cottonseed meal, soybean oil meal, peanut oil meal, o. p. linseed oil meal, palm kernel oil meal, babassu oil meal, brewers dried grains, cane molasses, salt, potassium iodide, Colloidaltine (a mineral compound composed of calcium carbonate and the phosphates of calcium, iodine, iron, copper, manganese, sulphur, and 12 other rare minerals, all in colloidal form). (Wheat middlings may contain ground screenings not exceeding mill run.)

Ti-O-Ga E-Gee 20% Dairy Feed
Wheat middlings, wheat bran, cottonseed meal, soybean oil meal, peanut oil meal, palm kernel oil meal, babassu oil meal, hominy feed, corn gluten feed, corn distillers grains, brewers dried grains, cane molasses, salt, potassium iodide, Colloidaltine (a mineral compound composed of calcium carbonate and the phosphates of calcium, iodine, iron, copper, manganese, sulphur, and 12 other rare minerals, all in colloidal form). (Wheat bran and wheat middlings may contain ground screenings not exceeding mill run.)

Ti-O-Ga Grower (Mash or Pellets)
Wheat middlings, wheat bran, soybean oil meal, o. p. linseed oil meal, corn meal, ground oats, ground barley, alfalfa leaf meal, meat and bone scrap, liver meal, dried skim milk, cod liver oil, cane molasses, salt, potassium iodide, Colloidaltine (a mineral compound composed of calcium carbonate and the phosphates of calcium, iodine, iron, copper, manganese, sulphur and 12 other rare minerals, all in colloidal form). (Wheat middlings and wheat bran may contain ground screenings not exceeding mill run.)

Jacob Trinley & Sons

Favorite Laying (Complete) Mash
Corn meal, meat scrap, dried milk, soy bean oil meal, wheat bran and middlings, ground oats, gluten, molasses, iodized salt, calcium carbonate, bone meal, alfalfa meal, concentrated cod liver oil, bone charcoal, soluble sulphur, flowers of sulphur, potassium iodide, iron sulphate, copper sulphate, manganese, cobalt, charcoal, oyster shell meal.

Limerick Laying Mash
Soy bean oil meal, corn meal, meat scrap, alfalfa meal, ground oats, corn gluten feed, wheat bran, wheat middlings, cane molasses, oyster shell meal, charcoal, bone meal, cod liver oil, iodized salt.

Trinley's 24% Dairy Feed
Cottonseed meal, linseed oil meal, malt sprouts, corn gluten meal, ground grain screenings, wheat bran, soy bean oil meal, corn distillers dried grains, cane molasses, bone meal, corn meal, iodized salt, calcium carbonate.

Trinley's 20% Dairy Feed
Corn gluten feed, cottonseed meal, soy bean oil meal, corn meal, linseed oil meal, corn distillers dried grains, malt sprouts, ground grain screenings, brewers dried grains, cane molasses, bone meal, calcium carbonate, wheat bran, iodized salt.

United Co-Operative Farmers, Inc.

United Farmers Breeder Mash
Alfalfa leaf meal, bone meal, buttermilk dried, corn meal, calcium carbonate, fish meal, meat scraps, ground oats, soya bean meal, flour middlings, dried greens buttermilk, bran, salt, cod liver oil, manganese sulfate.

United Farmers Egg Mash
Corn meal, bran wheat, middlings wheat, gr. oats, meat scraps 50%, fish meal 55%, soya bean meal, alfalfa meal, gluten, oyster shell meal, salt, fortified cod liver oil.

United Farmers Grower
Corn meal, wheat bran, wheat middlings, ground and pulv. oats, meat scraps 50%, soya bean meal, dried cereal grasses and buttermilk, dried skim milk, fish meal 55%, alfalfa meal, calcium carbonate, salt, fortified cod liver oil.

United Farmers Layer
Corn meal, wheat bran, wheat middlings, gr. & pulv. oats, meat scraps 50%, soya bean meal, dried skim milk, cereal grasses and buttermilk, fish meal 55%-60%, alfalfa meal 17%, calcium carbonate, salt, fortified cod liver oil, manganese sulfate.

United Farmers Milkmaker
Cane molasses, choice yellow hominy, ground oats, standard or pure bran, choice cottonseed 41%, oil meal pure, corn gluten feed, soya bean meal, corn distillers' grains, calcium carbonate, salt.

United Farmers Special Starter-Broiler
Corn meal, wheat bran, wheat middlings, pulv. & gr. oats, meat scraps 50%, soya bean meal, dried cereal grasses and buttermilk, dried skim milk, gluten meal, fish meal, alfalfa meal 17%, calcium carbonate, salt, fortified cod liver oil, manganese sulfate.

Unity Feeds, Inc.

Paycheck 24% Dairy Ration
Distillers dried grains, corn gluten feed, soybean oil meal, linseed oil meal, ground corn, ground oats, wheat and wheat bran processed, cottonseed meal, molasses, calcium carbonate and salt.

Paycheck 20% Dairy Ration
Distillers dried grains, corn gluten feed, soybean oil meal, linseed oil meal, wheat and wheat bran processed, cottonseed meal, ground corn, ground oats, molasses, calcium carbonate and salt.

Paycheck Laying Mash
Dried skimmed milk, flavin concentrate, Vitamin A and D feeding oil, dehydrated alfalfa meal, corn meal, ground wheat, ground oats, ground barley, wheat bran, wheat middlings, fish meal, meat scraps, corn gluten meal, soybean oil meal, calcium carbonate, manganese sulphate and salt.

Unity 20% Dairy Ration
Corn gluten feed, linseed oil meal, brewers dried grains, soybean oil meal, cottonseed meal, corn gluten meal, distillers dried grains, malt sprouts, wheat bran, wheat middlings, corn meal, ground oats, fish meal, molasses, calcium carbonate and salt.

Unity Growing Mash
Dried skimmed milk, Vitamin A and D feeding oil, flavin concentrate, dehydrated alfalfa meal, fish meal, meat scraps, corn gluten meal, wheat bran, wheat middlings, soybean oil meal, ground oats, ground wheat, ground barley, corn meal, calcium carbonate, manganese sulphate and salt.

Unity Laying Mash
Dried skimmed milk, flavin concentrate, Vitamin A and D feeding oil, dehydrated alfalfa meal, soybean oil meal, fish meal, meat scraps, corn gluten meal, wheat bran, wheat middlings, ground oats, ground barley, ground wheat, corn meal, calcium carbonate, manganese sulphate and salt.

Arthur Ventura Grain Co.

Every Day Dairy
Soy bean oil meal, linseed meal, Buffalo gluten feed, gluten meal, wheat middlings, wheat bran, cottonseed meal, hominy or corn meal, with or without beet pulp, bonemeal, salt, calcium carbonate, ground oats.

Ventura Grower
Wheat bran, wheat middlings, corn meal, feeding oat meal, pulverized oats, dried skim milk, fish meal, beef scraps, alfalfa leaf meal, calcium carbonate, charcoal, salt, Exadol.

Ventura Laying Mash
Wheat bran, wheat middlings, corn meal, fish meal, meat scraps, alfalfa leaf meal, dried skim milk, soy bean meal, pulverized oats, feeding oat meal, shell meal, salt, Exadol.

Ventura Starter
Wheat bran, wheat middlings, corn meal, feeding oat meal, pulverized oats, dried skim milk, fish meal, beef scraps, gluten meal, alfalfa leaf meal, calcium carbonate, charcoal, salt, Exadol.

C. P. Washburn Co.

"Made Right" Complete Broiler Ration
Fortified cod liver oil, whey and dried milk powder, corn meal, bran, middlings, wheat germ, oat meal, high grade meat scraps, fish meal, ground wheat, soya bean meal, gluten, alfalfa leaf meal, molasses, calcium carbonate, charcoal, salt, minerals, iron oxide, iodine, manganese.

"Made Right" Complete Layer
Fortified cod liver oil, whey and dried milk powder, corn meal, bran, middlings, wheat germ, oat meal, high grade meat scraps, fish meal, ground wheat, soya bean meal, gluten, alfalfa leaf meal, molasses, calcium carbonate, charcoal, salt, minerals, iron oxide, iodine, manganese.

"Made Right" 16% Dairy Feed
Corn meal, ground oats, cottonseed meal, wheat bran, soya bean meal, gluten, molasses, bone meal, calcium carbonate, salt, brewers grain, manganese, iodine.

"Made Right" Dry Mash
Corn meal, wheat bran, wheat middlings, wheat germ, red dog, 2nd clear flour, gr. oatmeal, linseed oil meal, gluten feed, soya bean meal, ground wheat, meat scraps, fish meal, whey and dried milk powder, alfalfa leaf meal, molasses, charcoal, calcium carbonate, salt, cod liver oil, minerals, iron oxide, iodine, manganese.

"Made Right" Special Dairy
Corn meal, ground oats, cottonseed meal, linseed oil meal, wheat bran, soya bean meal, gluten, molasses, bone meal, calcium carbonate, salt, brewers grain, manganese, iodine, calcium carbonate, oat feed.

"Made Right" Starting and Growing Feed
Corn meal, wheat bran, wheat middlings, wheat germ, gluten meal, oat meal, red dog, 2nd clear flour, meat scraps, gr. wheat, soya bean meal, fish meal, whey and dried milk powder, alfalfa leaf meal, molasses, calcium carbonate, charcoal, salt, cod liver oil, minerals, iron oxide, iodine, manganese.

"Made Right" Sweet Dairy Feed
Corn meal, ground oats, cottonseed meal, linseed oil meal, wheat bran, soya bean meal, gluten, molasses, bone meal, calcium carbonate, salt, brewers grain, manganese, iodine, calcium carbonate.

Wayne County Grangers Feed Corporation

Clyde 20% Dairy Feed
Choice cottonseed meal, dried brewers grains, choice malt sprouts, soybean oil meal, pulverized wheat screenings, corn meal or hominy feed, corn gluten feed, corn distillers dried grains, oat mill feed (oat hulls, oat shorts, oat middlings), wheat bran, molasses, 1% salt, 1% calcium carbonate.

Milkproducer 24% Dairy Feed
Corn gluten feed, corn distillers grains, o. p. linseed oil meal, brewers grains, choice cottonseed meal, wheat bran (may contain screenings), soybean oil meal, hominy feed or corn meal, ground oats, cane molasses, malt sprouts, steamed bone meal, ground limestone, salt.

Milkproducer 20% Dairy Feed
Corn gluten feed, corn distillers grains, o. p. linseed oil meal, brewers grains, corn meal or hominy feed, ground oats, cottonseed meal, wheat bran (may contain screenings), choice malt sprouts, soybean oil meal, ground limestone, cane molasses, iodized salt, steamed bone meal.

Superior 20% Dairy Feed
Choice cottonseed meal, o. p. linseed oil meal, corn gluten feed, wheat bran (may contain screenings), whole ground wheat, ground oats, corn meal, corn distillers grains, brewers grains, choice malt sprouts, cane molasses, o. p. soybean oil meal, minerals: iodized salt, bone charcoal, iron sulphate and calcium carbonate.

H. K. Webster Co.

Blue Seal All-Mash Growing Ration
Coarse ground No. 2 yellow corn, fine ground heavy oats, pure wheat bran, wheat flour middlings, high grade meat scraps, high grade fish meal, dried sweet cream buttermilk with riboflavin supplement, alfalfa leaf meal, corn gluten meal, P. R. cane molasses, calcium carbonate, salt, fortified A and D feeding oil.

Blue Seal Breeder's All Mash Ration
Dehydrated alfalfa leaf meal, dried sweet cream buttermilk with riboflavin supplement, fortified A and D feeding oil, wheat germ oil, P. R. cane molasses, h. g. meat and liver meals, high grade fish meal, corn gluten meal, No. 2 yellow corn meal, fine ground heavy oats, pure wheat bran, wheat flour middlings, salt, calcium carbonate.

Blue Seal Breeder's Mash
Dehydrated alfalfa leaf meal, dried skim milk with lactoflavin supplement, fortified cod liver oil, wheat germ oil, h. g. meat and liver meals, high grade fish meal, corn gluten meal, P. R. cane molasses, No. 2 yellow corn meal, pure wheat bran, wheat flour middlings, fine ground heavy oats, ground rolled oats, ground barley, salt, calcium carbonate.

Blue Seal Breeder's Laying Mash
No. 2 yellow corn meal, pure wheat bran, fine ground heavy oats, high grade meat scraps,high grade fish meal, corn gluten meal, wheat flour middlings, ground barley, P. R. cane molasses, dehydrated alfalfa leaf meal, dried sweet cream buttermilk with riboflavin supplement, salt, calcium carbonate, fortified A and D feeding oil.

Blue Seal Broiler Ration
Dried sweet cream buttermilk with riboflavin supplement, high grade meat scraps, high grade fish meal, alfalfa leaf meal, corn gluten meal, soy bean oil meal, No. 2 yellow corn meal, pure wheat bran, wheat flour middlings, fine ground heavy oats, P. R. cane molasses, calcium carbonate, salt, fortified A and D feeding oil

Blue Seal "20" Dairy Ration
Linseed oil meal (crushed cake), soy bean oil meal (pea sized), ground oats, fancy crimped oats, corn oil meal, gluten feed, choice cottonseed meal, hominy feed, dehydrated alfalfa leaf meal, wheat bran, corn distillers grains, P. R cane molasses, B. S. mineral mixture (white fish meal, edible bone meal, calcium carbonate, dicalcium phosphate, potassium iodide and salt).

Blue Seal "18" Dairy Ration
Fancy crimped oats, fancy ground oats, linseed oil meal (crushed cake) soy bean oil meal (pea size), steam rolled barley, hominy feed, wheat bran, corn oil meal, wheat middlings, P. R. cane molasses, B. S. mineral mixture (white fish meal, edible bone meal, calcium carbonate, dicalcium phosphate, potassium iodide and salt).

Blue Seal "16" Dairy Ration
Fancy crimped oats, fancy ground oats, linseed oil mea (crushed cake), soy bean oil meal (pea size), steamed rolled barley, hominy feed, dehydrated alfalfa leaf meal, wheat bran, corn oil meal, gluten feed, corn distillers grains, P. R. cane molasses, B. S. mineral mixture (white fish meal, edible bone meal, calcium carbonate, di-calcium phosphate, potassium iodide and salt).

Blue Seal Egg Mash
No. 2 yellow corn meal, fine ground heavy oats, pure wheat bran, wheat flour middlings, high grade meat scraps, high grade fish meal, dried sweet cream buttermilk with riboflavin supplement, alfalfa leaf meal, P. R. cane molasses, corn gluten meal, calcium carbonate, salt, fortified A and D feeding oil.

Blue Seal Fleshing Pellets
Yellow corn meal, corn oil meal, ground oat groats, fine ground oats, pure wheat middlings, soy bean oil meal, high grade meat scraps, dried skim milk, P. R. cane molasses, calcium carbonate, salt, fortified cod liver oil.

Blue Seal Growing Mash
Dried sweet cream buttermilk with riboflavin supplement, high grade meat scraps, high grade fish meal, alfalfa leaf meal, corn gluten meal, soy bean oil meal, No. 2 yellow corn meal, pure wheat bran, wheat flour middlings, fine ground heavy oats, ground barley, P. R. cane molasses, calcium carbonate, salt, fortified A and D feeding oil.

Blue Seal Hom-Mix 24% Dairy Ration
Choice cottonseed meal, soy bean oil meal, corn oil meal, malt sprouts, corn gluten meal, oat feed, wheat bran, hominy feed, peanut skins, germs and meal, linseed oil meal, dried brewers grains, P. R. cane molasses, B. S. mineral mixture (white fish meal, edible bone meal, calcium carbonate, dicalcium phosphate, potassium iodide and salt).

Blue Seal Improved All-Mash Ration
Coarse ground No. 2 yellow corn, fine ground heavy oats, pure wheat bran, wheat flour middlings, high grade meat scraps, high grade fish meal, dried sweet cream buttermilk with riboflavin supplement, alfalfa leaf meal, corn gluten meal, P. R. cane molasses, calcium carbonate, salt, fortified A and D feeding oil.

Blue Seal Improved Balanced Ration
Old process linseed oil meal, soy bean oil meal, ground oats, malt sprouts, corn gluten meal, choice cottonseed meal, hominy feed, wheat bran, corn distillers grains, dried brewers grains, corn oil meal, P. R. cane molasses, B. S. mineral mixture (white fish meal, edible bone meal, calcium carbonate, dicalcium phosphate, potassium iodide and salt).

Blue Seal Turkey Growing
Dried sweet cream buttermilk with riboflavin supplement, alfalfa leaf meal, high grade meat scraps, pure wheat bran, wheat flour middlings, No. 2 yellow corn meal, fine ground heavy oats, corn gluten meal, P. R. cane molasses, calcium carbonate, salt, fortified A and D feeding oil.

Est. M. G. Williams

Williams' Balanced Ration
Corn meal or hominy, linseed meal, cottonseed meal, ground oats, gluten feed, dried brewers grains, wheat feed, soy bean meal, calcium carbonate, molasses and salt.

Williams' Chick Starter
Corn meal, bran, middlings, ground oats or ground barley, alfalfa meal, soy bean meal, dried skim milk, meat scraps, fish meal, calcium carbonate, cod liver oil, manganese and salt.

Williams' Growing Mash
Corn meal, bran, middlings, ground oats or ground barley, soy bean meal, dried skim milk, alfalfa meal, fish meal, meat scraps, calcium carbonate, salt, cod liver oil and manganese.

Williams' Laying Mash
Corn meal, bran middlings, ground oats or ground barley, soy bean meal, meat scraps, fish meal, alfalfa meal, dried skim milk, calcium carbonate, salt, cod liver oil and manganese.

Stanley Wood Grain Co.

Bliss Dairy Ration
Corn meal (or hominy), cottonseed, wheat bran, soybean oilmeal, linseed oilmeal, wheat middlings, gluten meal, gluten feed, table salt, edible bonemeal, calcium carbonate, (beet pulp).

Preferred Complete Growing Ration
Cod liver oil, dried skim milk, dried whey, lactoflavin concentrate, dried fish meal, whole oat groats, meat scraps, alfalfa leaf meal, yellow corn meal, soybean oilmeal, ground wheat, corn gluten meal, ground barley, wheat bran, wheat middlings, feeding oatmeal, calcium carbonate, salt, manganese sulfate, Produlac distillers grains.

Preferred Complete Laying Ration
Cod liver oil, dried whey, soybean oilmeal, lactoflavin concentrate, dried skimmilk, dried fish meal, whole oat groats, meat scraps, alfalfa leaf meal, yellow corn meal, ground wheat, pulverized oats, wheat bran, wheat middlings, calcium carbonate, table salt, manganese sulfate, Produlac distillers grains.

Preferred Growing Feed
Meal, bran, middlings, reddog, ground barley, soybean oilmeal, alfalfa leaf meal, dried skim milk, meat scraps, dried fish meal, salt, calcium carbonate, cod liver oil, manganese sulfate, lactoflavin concentrate, dried whey, pulverized oats, Produlac distillers grains.

Preferred Laying Mash
Dried skim milk, dried whey, lactoflavin concentrate, fish meal, meat scraps, alfalfa leaf meal, wheat bran, yellow corn meal, soybean oilmeal, pulverized oats, feeding oatmeal, wheat middlings, salt, calcium carbonate, cod liver oil, manganese sulfate, Produlac distillers grains.

Preferred Starting Feed
Cod liver oil, lactoflavin concentrate, dried skim milk, dried whey, soybean oilmeal, alfalfa leaf meal, ground oat groats, fish meal, meat scraps, yellow corn meal, wheat bran, wheat flour middlings, salt, calcium carbonate, manganese sulfate.

Woods Dairy Ration
Cottonseed meal, wheat middlings, yellow corn meal (or hominy), soybean oilmeal, ground oats, old process linseed oilmeal, corn gluten feed, dried beet pulp, wheat bran, salt, calcium carbonate.

Assays of Vitamin D Carriers

In continuation of the work begun in 1940, assays have been made of a number of feeding oils. The results follow. But one sample fell below its guarantee. The assays reported were made by Leonard R. Parkinson, Jr., technical assistant in the Nutrition Laboratory.

Manufacturer and Trade Name	Guarantee A.O.A.C. Chick Units per Gram	Remarks
Apothecaries Hall Co., Waterbury, Conn.		
Fortified Cod Liver Oil	400	Guarantee sustained
F. E. Booth Co., San Francisco, Cal.		
Crescent Brand Sardiline	400	Guarantee sustained
Borden Co., New York, N. Y.		
Flaydry "100"	100	Guarantee sustained
Flaydry "120"	120	Guarantee sustained
Eastern States Farmers' Exchange, Springfield, Mass.		
Fortified Sardine	400	Guarantee sustained
Marden-Wild Corp., Boston, Mass.		
Mardol 400	400	Guarantee not sustained. Retested.
National Oil Products Co., Inc. Harrison, N. J.		
Nopco F. O.	85	Guarantee sustained
Nopco XX	400	Guarantee sustained
Silmo Chemical Co., Vineland, N. J.		
Silmo XX	400	Guarantee sustained
E. R. Squibb & Sons, New York, N. Y.		
Exadol	400	Guarantee sustaine
White Laboratories, Inc., Newark, N. J.		
Clo-trate	400	Guarantee sustained
Whitmoyer Laboratories, Inc., Myerstown, N. J.		
Whitmoyer's Cod Liver Oil	100	Guarantee sustained

The Analysis of Feeding Molasses

At the present time molasses is probably the most generally used ingredient of animal feeds. Few dairy and horse feeds are without it and it is occasionally found in poultry rations as well. It is also being used extensively in grass silage. Its value apparently lies in its sugar content, although it may well be that certain vitamins and the ash elements present in small amount should be given some recognition in fixing its worth. A strict interpretation of the Feeding Stuffs Act would require a protein, fat, and fiber guarantee for this product. Such a guarantee for molasses would be meaningless. It is to be regretted that the rigid requirements of the Act cannot be made more flexible in order to permit or make obligatory a guarantee which would reflect the value of such a product.

The definition of Feeding Cane Molasses as given by Association of Feed Control officials is "Feeding Cane Molasses is a by-product of the manufacture of cane sugar from cane and shall contain 48 per cent or more of total sugars expressed as invert sugar. Its solution in an equal weight of water shall test not less than 39.75 degrees Brix."

In order to learn something more about the composition of molasses than is ordinarily found in reference books, an extended analysis of nine samples found in the Massachusetts markets has been made. The results follow. Their application and interpretation is left to the feeding expert.

Analyses of Feeding Molasses

	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 7	No. 8	No. 9	Average
Water %	27.76	31.68	26.44	27.30	23.01	28.58	25.13	24.86	27.04	26.87
Brix°	79.8	74.6	80.0	80.2	81.4	80.2	81.6	81.6	80.2	80.00
Protein %	3.22	3.08	3.24	3.07	1.92	3.00	3.30	3.99	2.52	3.04
Total Sugars %	49.7	44.7	47.3	50.4	58.7	48.4	51.0	51.1	49.1	50.0
Ash %	7.53	7.93	8.28	8.03	7.50	7.98	8.40	8.13	7.02	7.87
Acid Insoluble Ash %	0.23	0.13	0.50	0.13	0.45	0.13	0.40	0.35	0.20	0.28
Calcium %	0.92	0.93	0.91	0.86	0.52	0.88	0.91	0.94	0.97	0.87
Chlorine %	2.80	2.65	2.45	3.35	3.55	1.70	1.95	1.60	1.85	2.43
Copper %	0.0040	0.0029	0.0029	0.0026	0.0069	0.0026	0.0026	0.0035	0.0026	0.0034
Iron %	0.017	0.014	0.012	0.013	0.016	0.013	0.011	0.025	0.014	0.015
Magnesium %	0.46	0.45	0.48	0.44	0.36	0.44	0.48	0.47	0.45	0.45
Manganese %	0.004	0.004	0.004	0.003	0.001	0.004	0.005	0.005	0.004	0.004
Phosphorus %	0.07	0.07	0.07	0.08	0.02	0.07	0.07	0.07	0.09	0.07
Potassium %	2.06	2.15	2.24	2.33	2.52	2.34	2.29	2.14	1.70	2.20
Sodium %	0.072	0.092	0.090	0.050	0.410	0.077	0.014	0.069	0.460	0.148
Sulphur %	0.58	0.66	0.66	0.58	0.28	0.59	0.68	0.60	0.40	0.55

Directory of Manufacturers Who Registered Feeding Stuffs for Sale in Massachusetts in 1941

Acme- Evans Co., Indianapolis, Ind.
Albers Bros. Milling Co., Seattle, Wash.
Allied Mills, Inc., Chicago, Ill.
American Butter Co., Greenmelk Division, Kansas City, Mo. (Name changed to Cerophyl Laboratories, Inc.)
American Maize-Products Co., 100 East 42nd St., New York, N. Y.
A. P. Ames & Co., 10 Walnut St., Peabody, Mass.
Anheuser-Busch, Inc., St. Louis, Mo.
Arcady Farms Milling Co., 223 West Jackson Blvd., Chicago, Ill.
Archer-Daniels-Midland Co., Minneapolis, Minn.
Ashcraft-Wilkinson Co., Atlanta, Ga. (Registered also for Rio Grande Valley Citrus Exchange and Suni-Citrus Products Co.)
W. E. Atkinson Co., 27 Water St., Newburyport, Mass.
E. R. Bacon Grain Co., 177 Milk St., Boston, Mass.
E. W. Bailey & Co., Montpelier, Vt.
Barber & Bennett, Inc., Albany, N. Y.
Beacon Milling Co., Inc., Cayuga, N. Y.
Berkshire Coal & Grain Co., Inc., North Adams, Mass.
Bisbee Linseed Co., Inc., Amsterdam, N. Y.
Blatchford Calf Meal Co., Waukegan, Ill.
Blatchley & Ballard, Inc., Middletown, Conn.
Borden Co., 350 Madison Ave., New York, N. Y.
Borden Grain Co., West Water St., Taunton, Mass.
A. H. Brown & Bros., Boston, Mass. (Registered by Mellin's Food Co. of North America.)
George B. Brown Corporation, Ipswich, Mass.
Buckeye Cotton Oil Co., Cincinnati, Ohio
C. W. Burckhalter, Inc., 156 Franklin St., New York, N. Y.
A. B. Caple Co., Toledo, Ohio
Cargill, Inc., 80 Broad St., New York, N. Y.
Catlin Bros., Grain and Flour Exchange, Boston, Mass. (Agent for Texas Star Flour Mills.)
Center Milk Products Co., Middlebury Center, Penn.
Central Soya Co., Inc., 300 Old-First Bank Bldg., Ft. Wayne, Ind.
Cerophyl Laboratories, Inc., Kansas City, Mo. (Formerly Greenmelk Division of American Butter Co.)
Checkerboard Elevator Co., St. Louis, Mo. (Registered by Ralston Purina Co.)
S. J. Cherry & Sons, Ltd., Preston, Canada
Clinton Co., Clinton, Iowa
Coatsworth and Cooper, 67 Yonge St., Toronto, Ont., Canada
Colfax Packing Co., 34 Colfax St., Pawtucket, R. I.
Commander-Larabee Milling Co., Minneapolis, Minn.
Commercial Milling Co., 323 East Atwater St., Detroit, Mich.
Community Feed Stores, South Deerfield, Mass.
Continental Grain Co., Franklin L. Lewi Division, 2 Broadway, New York, N. Y.
Copeland Flour Mills, Ltd., Midland, Ont., Canada
Corn Products Sales Co., 17 Battery Place, New York, N. Y.
Nicolas Courcy Grain Co., 12 Waverly St., Taunton, Mass.
Cover Grain & Feed Co., 150 Middle St., Lowell, Mass.
Chas. M. Cox Co., 177 Milk St., Boston, Mass. (Registered also for Maple Leaf Milling Co., Ltd. and Estate of Silas Taft.)
Dailey Mills, Inc., Montgomery St., Binghamton, N. Y.
Dairymen's League Co-Operative Association, Inc., 11 West 42nd St., New York, N. Y.
Decatur Milling Co., Inc., Decatur, Ill.
Decatur Soy Products Co., Decatur, Ill.
Dehydrating Process Co., 60 Mt. Washington Ave., Boston, Mass.
Delaware Mills, Inc., Deposit, N. Y.
Denver Alfalfa Milling & Products Co., Lamar, Cal.
Deutsch & Sickert Co., Milwaukee, Wis.
Frank Diauto, 87 Warren St., Randolph, Mass.
F. Diehl & Son, Inc., Wellesley, Mass.
Dietrich & Gambrill, Inc., Frederick, Md.
Drackett Products Co., 5020 Spring Grove Ave., Cincinnati, Ohio
J. L. Dunnell & Son, Bernardston, Mass.
Eagle Roller Mill Co., New Ulm, Minn.
East Bridgewater Farmers' Exchange, Inc., East Bridgewater, Mass.
Eastern Grain Co., Bridgewater, Mass.
Eastern Semolina Mills, Inc., Baldwinsville, N. Y.
Eastern States Farmers' Exchange, Box 1482, Springfield, Mass.
B. A. Eckhart Milling Co., Chicago, Ill.
Economy Grocery Stores Corporation, 393 D St., Boston, Mass.
Egg-O-Milk Co., Baltimore, Md.
M. W. Ellis, 19 Walnut St., Peabody, Mass.
Elmore Milling Co., Inc., Oneonta, N. Y.
John W. Eshelman & Sons, Lancaster, Penn.
Evans Milling Co., Indianapolis, Ind.
Excelsior Milling Co., 712 Flour Exchange, Minneapolis, Minn.
George A. Fair, Holliston, Mass.
Farm Service Division, General Mills, Inc., Fitchburg, Mass.
Farmers Feed Co., Buffalo, N. Y.
Farmers Feed Co., 532 East 76th St., New York, N. Y.
Federal Mill, Inc., Lockport, N. Y.
Ferneau Grain Co., Blanchester, Ohio
Finger Lakes & Hudson Flour Mills, Inc., 7-9 Madison St., Troy, N. Y.
First National Stores, Inc., 5 Middlesex Ave., Somerville, Mass.
Flory Milling Co., Inc., Bangor, Penn.
Forbes Bros.—Central Mills, Topeka, Kan.
Fred A. Fountain, Inc., Taunton, Mass.
Dean S. French, 17 Columbia St., Stoughton, Mass.

Paul Fuller & Sons, 8 Mooney Ave., Salem, Mass.
Funk Bros. Seed Co., Bloomington, Ill.
J. B. Garland & Son, Inc., 15 Grafton St., Worcester, Mass.
General Foods Corporation, Corn Mill Division, Kankakee, Ill.
General Foods Corporation, Post Products Division, Battle Creek, Mich.
General Mills, Inc., Minneapolis, Minn.
W. K. Gilmore & Sons, Inc., Walpole, Mass.
Glidden Co., Soya Products Division, 5165 West Moffat St., Chicago, Ill.
Gloucester Dehydrating Process Co., Gloucester, Mass.
Golden Eagle Milling Co., Petaluma, Cal. (Registered by Western Condensing Co.)
Goode Grain Co., 452 Broadway, Lowell, Mass.
Gorton-Pew Fisheries Co., Ltd., 327 Main St., Gloucester, Mass.
Grand Isle County Co-Operative Creamery Association, Inc., Grand Isle, Vt.
Grand Union Co., 233 Broadway, New York, N. Y.
D. H. Grandin Milling Co., Jamestown, N. Y.
Great Atlantic & Pacific Tea Co., New York, N. Y.
Great River Milling Co., Westfield, Mass.
Green Acre Farms, Nazareth, Penn.
Gwinn Milling Co., Columbus, Ohio
Hales & Hunter Co., 166 West Jackson Blvd., Chicago, Ill.
Frank B. Ham & Co., Ltd., 2-8 King St. East, Toronto, Ont., Canada
Wm. Hamilton & Son, Inc., Caledonia, N. Y.
D. Harbeck & Sons, 405 Earl St., New Bedford, Mass.
Hecker Products Corporation, Flour and Cereal Division, 50 Marvin St., Buffalo, N. Y.
Hercules Powder Co., Inc., Dairy Products Division, 332 South Michigan Ave., Chicago, Ill.
D. B. Hodgkins' Sons, Gloucester, Mass.
Horvitz Grain Co., 742 Acushnet Ave., New Bedford, Mass.
Hubinger Co., Keokuk, Iowa
Humphreys Godwin Co., Memphis, Tenn.
Illinois Cereal Mills, Inc., Paris, Ill.
Independent Tallow Co., Inc., 39 Cedar St., Woburn, Mass.
International Milling Co., Minneapolis, Minn.
Ismert Hincke Milling Co., Kansas City, Mo.
Jaquith & Co., 305 Main St., Woburn, Mass.
Kansas Flour Mills Corporation, Kansas City, Mo. (Subsidiary of Flour Mills of America, Inc.)
Kasco Mills, Inc., Waverly, N. Y.
Kellogg Co., Battle Creek, Mich.
Spencer Kellogg & Sons, Inc., 98 Delaware Ave., Buffalo, N. Y.
H. H. King Flour Mills Co., Minneapolis, Minn.
King Midas Flour Mills, 500 Flour Exchange, Minneapolis, Minn.
Chas. A. Krause Milling Co., Milwaukee, Wis.
Kuiper & Bolle, 508 Produce Exchange, New York, N. Y.
Lake of the Woods Milling Co., Ltd., Montreal, Que., Canada
Lakeside Milling Co., Ltd., Esplanade at Princess St., Toronto, Ont., Canada
J. T. Lampman & Co., Claverack, N. Y.
Larabee Flour Mills Co., Kansas City, Mo.
Larrowe Milling Company (Trade Name) of General Mills, Inc., Detroit, Mich.
Franklin L. Lewi Division, Continental Grain Co., 2 Broadway, New York, N. Y.
John T. Lewis & Bros. Co., Philadelphia, Penn. (a wholly owned subsidiary and branch of National Lead Co., 111 Broadway, New York, N. Y.)
A. S. MacDonald Commission Co., 404 Grain & Flour Exchange, Boston, Mass. (Registered for Parrish & Heimbecker, Ltd.)
Maine Fish Meal Co., Union Wharf, Portland, Maine
Mansfield Coal & Grain Co., Mansfield, Mass.
Mansfield Milling Co., 1 Samoset Ave., Mansfield, Mass.
Maple Leaf Milling Co., Ltd., Toronto, Ont., Canada (Registered by Chas. M. Cox Co.)
Maritime Milling Co., Inc., Buffalo, N. Y.
Meadow Brook Farms, Nazareth, Penn.
Mellin's Food Company of North America, 41 Central Wharf, Boston, Mass. (Registered for A. H. Brown & Bros., Sole Agents)
Merrimack Farmers' Exchange, Inc., Concord, N. H.
Middlesex County Farm Bureau Association, 131 Lexington St., Waltham, Mass.
Miller Cereal Mills, Omaha, Neb.
Miner-Hillard Milling Co., Wilkes-Barre, Penn.
Geo. Q. Moon & Co., Inc., Binghamton, N. Y.
Jas. F. Morse & Co., 11 Horace St., Somerville, Mass.
Muir & Co., 408 Produce Exchange, New York, N. Y.
National Biscuit Co., Shredded Wheat Bakeries, Niagara Falls, N. Y.
National Distillers Products Corporation, 120 Broadway, New York, N. Y.
National Lead Co., 111 Broadway, New York, N. Y. (and John T. Lewis & Bros. Co., Philadelphia, Penn., a wholly owned subsidiary and branch).
Neumond Co., 303 Merchants Exchange, St. Louis, Mo.
New England Dairies, Inc., Charlestown, Mass.
New England Grain Co., 390 Commercial St., Portland, Maine
New England Rendering Co., Brighton, Mass.
New England Retail Grain Dealers Cooperative Association, Springfield, Mass.
Ogden Grain Co., Utica, N. Y.
Ogilvie Flour Mills Co., Ltd., Montreal, Que., Canada
Oswego Soy Products Corporation, Oswego, N. Y.
Pabst Brewing Co., Milwaukee, Wis.
Palm Grain Co., 1081 Gorham St., Lowell, Mass.
Park & Pollard Co., 356 Hertel Ave., Buffalo, N. Y.
George H. Parker Grain Co., Danvers, Mass.
Parrish & Heimbecker, Ltd., Toronto, Ont., Canada (Registered by A. S. MacDonald Commission Co.)
Patent Cereals Co., Geneva, N. Y.
Pecos Valley Alfalfa Mill Co., Chandler, Ariz.
Perkins Oil Co., Memphis, Tenn.
Pillsbury Flour Mills Co., Minneapolis, Minn.
Maurice Pincoffs Co., 1 Main St., Houston, Texas

Pittsburgh Plate Glass Co., Linseed Oil Division, 2-10 Chester Ave., Newark, N. J.
W. N. Potter Grain Stores, Inc., Greenfield, Mass.
Pratt Food Co., Inc., Buffalo, N. Y.
R. C. Pratt, 68 King St. E., Toronto, Ont., Canda
Publicker, Inc., Philadelphia, Penn.
H. C. Puffer Co., Springfield, Mass.
Quaker Oats Co., 141 West Jackson Blvd., Chicago, Ill.
Ralston Purina Co., St. Louis, Mo. (Registered also for Checkerboard Feed Store.)
John Reardon & Sons, Division of Wilson & Co., Inc., Cambridge, Mass.
D. F. Riley, North Hatfield, Mass.
Rio Grande Valley Citrus Exchange, Weslaco, Texas (Registered by Ashcraft-Wilkinson Co.)
Rodney Milling Co., Kansas City, Mo.
Roy Grain Co., Rehoboth, Mass.
H. M. Rubin Co., 9-19 38th Ave., Long Island City, N. Y.
Russell-Miller Milling Co., Minneapolis, Minn.
Ryther & Warren Co., Belchertown, Mass.
St. Lawrence Flour Mills Co., Ltd., 2110 Notre Dame St. West., Montreal, Que., Canada
Saunders Mills, Inc., Box 192 Central Station, Toledo, Ohio
Schenley Distilleries, Inc., 350 Fifth Ave., New York, N. Y.
Schoeneck Farms, Inc., Nazareth, Penn.
Schuyler Warehouse, Inc., Arch & Church Streets, Albany, N. Y.
Seaboard Western Grain Corporation, 2 Broadway, New York, N. Y.
Joseph E. Seagram & Sons, Inc., Louisville, Ky.
Sherwin Williams Co., 101 Prospect Ave., N. W., Cleveland, Ohio
W. J. Small Co., Inc., Neodesha, Kan.
Smith-Bodfish-Swift Co., Vineyard Haven, Mass.
Southern Cotton Oil Co., Goldsboro, N. C.
A. E. Staley Manufacturing Co., Decatur, Ill.
Standard Milling Co., 309 West Jackson Blvd., Chicago, Ill.
Stratton & Co., Concord, N. H.
Suni-Citrus Products Co., Haines City, Florida (Registered by Ashcraft-Wilkinson Co.)
Sunny Slope Farms, Nazareth, Penn.
Swift & Company Soybean Mills, Champaign, Ill.
C. H. Symmes & Co., Winchester, Mass.
Estate of Silas Taft, Uxbridge, Mass. (Registered by Chas. M. Cox Co.)
Texas Star Flour Mills, Galveston, Texas (Catlin Bros. Agent)
Tioga Mills, Inc., Waverly, N. Y.
Toledo Soybean Products Co., 215 Pontiac St., Toledo, Ohio
Tremaine Alfalfa Ranch & Milling Co., Inc., Mesa, Ariz.
Jacob Trinley & Sons, Linfield, Penn.
Union Sales Corporation, Distributor for Union Starch & Refining Co., 301 Washington St., Columbus, Ind.
Union Supply & Milling Corporation, Burbank, Cal.
United Cooperative Farmers, Inc., P. O. Box 93, Fitchburg, Mass.
United Farmers Cooperative Creamery Association, Inc., Charlestown, Mass.
Unity Feeds, Inc., 177 Milk St., Boston, Mass.
Universal Grain Corporation, 2 Broadway, New York, N. Y.
Van Iderstine Co., Long Island City, N. Y.
Arthur Ventura Grain Co., 7 Purchase St., Taunton, Mass.
Victor Flour Mills, Inc., Pittsford, N. Y.
O. B. Vunck & Co., Inc., Voorheesville, N. Y.
Hiram Walker & Sons, Inc., Foot of Edmund St., Peoria, Ill.
Ward Milk Products Division of Kraft Cheese Co., 500 Peshtigo Ct., Chicago, Ill.
C. P. Washburn Co., Middleboro, Mass.
Wayne County Grangers Feed Corporation, Clyde, N. Y.
H. K. Webster Co., Lawrence, Mass.
Western Condensing Co., Petaluma, Cal. (Golden Eagle Milling Co., Distributors)
Williams Bros. Co., North Water St., Kent, Ohio
Est. M. G. Williams, Box 603, Taunton, Mass.
Wilmington Packing Co., New Boston St., Woburn, Mass.
Wilson & Co., 4100 South Ashland Ave., Chicago, Ill.
Stanley Wood Grain Co., Taunton, Mass.
Worcester Grain & Coal Co., Worcester, Mass.
Yantic Grain & Products Co., Norwich, Conn.
J. Younge Grain Co., Peoria, Ill.

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MASSACHUSETTS
AGRICULTURAL EXPERIMENT STATION

CONTROL SERIES BULLETIN NO. 111 NOVEMBER, 1941

Seed Inspection

By F. A. McLaughlin

This report, the fourteenth in seed control service, is a record of work delegated to the Massachusetts Agricultural Experiment Station during 1941, by authority of Chapter 94 as amended by Chapter 288 of the Acts of 1937 and Chapter 363 of the Acts of 1938.

MASSACHUSETTS STATE COLLEGE

AMHERST, MASS.

ANNOUNCEMENT

The Seed Testing Laboratory will allow ten units of work free of charge, during any calendar year, to any resident firm or citizen of Massachusetts.

Units are rated as follows:	Units
Purity analysis (red clover, timothy, etc.)	1
Purity analysis (bluegrass, orchard grass, etc.)	2
Purity analysis of a mixture of seeds (depending upon the number of kinds in the mixture)	4–10
Examination for noxious weeds (sample of 4 oz. or less)	2
Identification of seed or plant	1
Cleaning tobacco seed (4 oz. or less)	2
Germination test (4 x 100 seeds of any seed not chaffy or requiring purity analysis)	1
Germination test (soil, 2 x 100 seeds)	1
Germination test (chaffy grasses or seeds requiring purity analysis)	2

Fees for work in excess of the ten free units allowed to a citizen or resident firm of Massachusetts are as follows:

Germination test of all crop seeds except grasses	$0.25
Germination test of timothy	.25
Germination test of all other grasses	.50
Purity analysis of cereals	.50
Purity analysis of timothy	.75
Purity analysis of all other grasses	1.00
Purity analysis of all other crop seeds	.75
Purity analysis of mixtures of not more than 2 kinds of agricultural seeds	1.00
Purity analysis of special mixtures, including lawn grasses and pasture mixtures — a charge sufficient to cover the actual cost of working the sample, depending entirely upon the character of the sample. Minimum charge	1.25

In no case will the final report be rendered until all fees are paid.

The minimum weights of samples to be submitted for analysis are:

a. Two ounces of grass seed, white or alsike clover, or seeds not larger than these.
b. Five ounces of red or crimson clover, alfalfa, ryegrasses, millet, rape, or seeds of similar size.
c. One pound of cereal, vetches, or seeds of similar or larger size.

The minimum number of seed of any one kind to be submitted for a germination test is 400.

SEED INSPECTION

By F. A. McLaughlin[1]

MASSACHUSETTS VEGETABLE SEED STANDARDS FOR 1942

Section 261D of the Seed Law requires that a set of standards for germination of vegetable seeds be determined each year by the Director of the Massachusetts Agricultural Experiment Station and approved by the Commissioner of Agriculture. The following set of standards for 1942 has been so determined and approved:

KIND OF SEED	GERMINATION STANDARD %	KIND OF SEED	GERMINATION STANDARD %
Artichoke	60	Kohlrabi	75
Asparagus	*70	Leek	60
Beans:		Lettuce	80
Limas	70	Melons:	
Other varieties than Limas	80	Muskmelon	75
Beets	65	Watermelon	70
Broccoli	75	Mustard	75
Brussels Sprouts	70	Okra	*50
Cabbage	75	Onions	70
Carrot	55	Parsley	60
Cauliflower	75	Parsnip	60
Celeriac	55	Peas	80
Celery	55	Peppers	55
Chard, Swiss	65	Pumpkin	75
Chicory	65	Radish	75
Chinese Cabbage	75	Rhubarb	60
Citron	65	Rutabaga	75
Collards	80	Salsify	75
Corn, Sweet	75	Sorrel	60
**Cress, Garden	40	Spinach:	
Cress, Water	25	Common	60
Cucumber	80	New Zealand	40
Dandelion	45	Squash	75
Egg Plant	60	Tomato	75
Endive	70	Tomato, Husk	50
Fetticus (Corn Salad)	70	Turnip	80
Kale	75		

*Including Hard Seeds.

**Garden Cress (*Lepidium sativum*) is also called Pepper Grass and Curled Cress. Should not be confused with Upland Cress or Spring Cress (*Campe verna*) for which no standard has been adopted.

The above set of standards is identical with the one adopted by the United States Department of Agriculture for administration of the Federal Seed Act.

In the enforcement of the law, no tolerances will be allowed below the minimum standards adopted.

[1] Assisted by Miss Jessie L. Anderson, Technical Assistant; Miss Eunice Richardson, Laboratory Assistant from March to June, 1941; and Miss May J. Honnay, Clerk.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS

From November 1, 1940 to November 1, 1941, the Seed Laboratory received and worked 2941 samples of seed, of which 942 were collected by the State Department of Agriculture and 1999 were sent in by seedsmen, farmers, and various state institutions. An additional lot of 209 samples of flower seeds, for field tests only, was also received from the State Commissioner of Agriculture.

Classification of these samples with the total number of laboratory tests involved is shown in the following summary. It will be noted that the total number of tests required for the 2941 samples was 3912; 671 for purity and 3241 for germination.

Number of Samples		Number of Tests: Purity	Number of Tests: Germination
544	Field Crops for Purity and Germination	544	544
2	Field Crops for Purity Only	2	—
235	Field Crops for Germination Only	—	235
80	Lawn and Other Types of Mixtures for Purity; Germinations involving 390 ingredients	80	390
35	Lawn Mixtures for Purity Only	35	—
7	Lawn Mixtures for Germination Only; Germinations involving 36 ingredients	—	36
1846	Vegetables for Germination Only	—	1846
44	Herbs for Germination Only	—	44
16	Flower Seeds for Germination Only	—	16
8	Flower Seeds for Purity and Germination	8	8
2	Flower Seeds for Purity Only	2	—
13	Tree Seeds for Germination Only	—	13
90	Tobacco Seeds for Cleaning and Germination	—	90
19	Tobacco Seeds for Germination Only	—	19
2941		671	3241

Field tests to determine trueness to type were conducted in cooperation with the Departments of Olericulture, Floriculture, and Agronomy, which tested respectively 220 samples of Vegetable seeds, 209 samples of Flower seeds, and 40 samples of Oats. Results of the field tests are shown on pages 75–93.

The Seed Laboratory cleaned 90 lots of Tobacco seed for Connecticut Valley farmers. The gross weight of the 90 lots of seed amounted to 131.29 pounds with a net weight of cleaned seed 102.17 pounds.

Explanation of Tables

In these tables the seeds are listed in alphabetical order by groups, each group containing only those seeds, the sale of which is regulated by a definite section of the Massachusetts Seed Law. Section 261-A of the Acts and Resolves of 1937 and 1938, Chapters 288 and 363, defines the group from Alfalfa to Wheat, inclusive; Section 261-B, Mixtures; Section 261-C, Special Mixtures; and Section 261-D, Vegetables.

The number preceding each analysis is for identification and reference. The line to the right of the letter "L" gives information copied from the label; that to the right of "F" what was found in the laboratory analysis.

Various symbols have been used to call attention to violations and irregularities and with certain tables a column is devoted to "Notes." Where symbols occur an explanation is given in footnotes at bottom of the page.

All lots of seed included in this report were tested according to the Rules for Seed Testing adopted by the Association of Official Seed Analysts.

"Tolerance" is applied to both purity and germination, except for vegetable seed found below the minimum germination standards adopted, in which instance no tolerance is allowed. "Germination Tolerance" has been applied between a given germination and the result of the germination test as follows:

GIVEN GERMINATION (PERCENT)	TOLERANCE (PERCENT)
96 or over	5
90 or over, but less than 96	6
80 or over, but less than 90	7
70 or over, but less than 80	8
60 or over, but less than 70	9
Less than 60	10

In the determination of the tolerance for the percentage of the distinguishable kind, type, or variety (pure seed), weed seeds, other crop seeds, and inert matter, the sample shall be first considered as made up of two parts: (a) The percentage of the component (pure seed, weed seed, crop seed or inert matter as the case may be) being considered, and (b) the difference between that percentage and 100. The number represented by (a) is then multiplied by the number represented by (b) and the product is divided by 100. The resulting number is then multiplied by 0.2 (2/10) and the resulting product added to 0.2 or 0.6 as indicated in the following formulae:

$$\text{Pure seed tolerance} = 0.6 + \left\{ 0.2 \times \frac{a \times b}{100} \right\}$$

$$\text{Weed seeds, other crop seeds, and inert matter tolerance} = 0.2 + \left\{ 0.2 \times \frac{a \times b}{100} \right\}$$

For Poa spp., Agrostis spp., Festuca spp., bromegrass, crested wheatgrass, orchard grass, velvet grass, tall oatgrass, meadow foxtail, sweet vernalgrass, Rhodes grass, Dallis grass, carpet grass, and Bermuda grass, and mixtures containing these seeds singly or combined in excess of 50 percent, an additional tolerance shall be allowed. This is to be obtained by adding to the regular tolerance mentioned above the product obtained by multiplying the regular tolerance by the lesser of "a" and "b" divided by 100.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer when Other than Wholesale Distributor, and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test	Notes	Noxious Weed Seeds per Ounce
	ALFALFA									
	JOSEPH BRECK & SONS, Boston, Mass.									
219	Grimm, No. A B 321	L.	99.00	0.20	0.40	0.40	84–10	1/1940		
		F.	99.07	0.17	0.05	0.71	83–14	8/1941		
	THOMAS W. EMERSON CO., Boston, Mass.									
105	Canadian, No. 130	L.	99.18	0.08	0.64	0.10	73–15	3/1940		
		F.	99.66	0.12	0.18	0.04	76–4	8/1941	(C)	
	WM. G. SCARLETT & CO., Baltimore, Md.									
1061	Grimm, No. 9256	L.	99.50	0.20	0.30	—	81–9	2/1941		1 Dodder
	Farmers' Co-operative Exchange, Framingham	F.	98.98	0.17	0.66	0.19	86–7	8/1941		1 Dodder
	STANFORD SEED CO., Buffalo, N. Y.									
1115	Grimm, No. 3129	L.	99.90	0.02	0.06	0.02	80–15	3/1941		
	Southbridge Grain Co., Southbridge	F.	99.91	0.04	—	0.05	93–6	8/1941		
	WHITNEY SEED CO., Buffalo, N. Y.									
1081	Grimm, No. 2304	L.	99.50	0.10	0.06	0.34	75–20	2/1941		
	V. P. Levreault, South Hadley Falls	F.	99.27	0.16	0.22	0.35	85–12	8/1941		
	BARLEY									
	CHARLES M. COX CO., Boston, Mass.									
979	Fancy Trebi—6 rowed	L.	96.00	0.75	0.75	2.50	92.00	5/1941		
	W. K. Gilmore & Sons, Inc., Norfolk	F.	99.14	0.08	0.30	0.48	97.00	7/1941		
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.									
825	Selected Spring, No. 1271	L.	98.00	0.30	1.20	0.50	90.00	1/1940	**	
	Eastern States Farmers' Exchange, Great Barrington	F.	99.65	0.01	0.16	0.18	90.00	7/1941		
	STANFORD SEED CO., Buffalo, N. Y.									
1114	Wisconsin 36—6 row, No. 2662	L.	99.66	0.16	0.18	—	92.00	3/1941		
	Southbridge Grain Co., Southbridge	F.	99.18	—	0.42	0.40	94.00	7/1941		
	BENT GRASS									
	THOMAS W. EMERSON CO., Boston, Mass.									
108	Astoria, No. 128	L.	96.38	0.19	3.43	0.10	90.00	3/1941		
		F.	96.31	0.08	3.54	0.07	92.00	6/1941		

	JOHN D. LYON, INC., Belmont, Mass.										
378	Raritan Velvet, No. 98 R-14	L.	90.00	*	7.50	2.50	85.00	10/1940	(n)		
		F.	84.34†	0.58	11.17	3.91	65.00†	6/1941			
	ROSS BROS. CO., Worcester, Mass.										
203	Astoria, No. A 166	L.	98.25	0.30	1.45	—	90.00	1/1941			
		F.	98.11	0.17	1.72	—	95.00	6/1941			
	BLUEGRASS										
	JOSEPH BRECK & SONS, Boston, Mass.										
215	Fancy Kentucky, No. 8771 S-2	L.	92.20	—	7.47	0.18	84–15	1/1941			
		F.	92.16	0.19	7.56	0.09	81.00	5/1941			
724	Kentucky, No. 8638	L.	85.63	0.39	13.98	—	*	11/1940			
	Beverly Hardware Co., Beverly	F.	86.89	0.19	12.82	0.10	90.00	6/1941			
	ARTHUR R. CONE, Buffalo, N. Y.										
457	Kentucky, No. 34–74	L.	85.43	0.23	14.27	—	80.00	2/1941			
	Frank Howard, Inc., Pittsfield	F.	86.28	0.37	13.26	0.09	74.00	5/1941			
	JOHN D. LYON, INC., Belmont, Mass.										
375	Kentucky, No. 32219	L.	89.47	0.27	10.26	—	80.00	2/1941			
		F.	88.75	0.29	10.86	0.10	75.00	6/1941			
	DOUGHTEN SEED CO., Jersey City, N. J.										
449	Kentucky, No. B-355	L.	98.02	0.02	1.76	—	80.00	1/1941			
	Frank Howard, Inc., Pittsfield	F.	96.52†	0.26	3.22	—	82.00	5/1941	(a)	52 English Plantain	
	THOMAS W. EMERSON CO., Boston, Mass.										
111	Kentucky, No. 27	L.	97.99	0.28	1.63	0.10	92.00	11/1940			
		F.	97.01	0.78	2.21	—	89.00	5/1941			
467	Kentucky, No. 28	L.	86.27	0.34	13.00	0.10	86.00	1/1941			
	Carr Hardware Co., Pittsfield	F.	87.01	1.06†	11.84	0.09	85.00	7/1941			
	ROSS BROS. CO., Worcester, Mass.										
202	Kentucky, No. A-178	L.	98.64	0.15	1.16	0.05	88.00	1/1941			
		F.	98.79	0.24	0.97	—	84.00	5/1941			
208	Canada, No. A-170	L.	89.00	0.10	10.60	0.28	82.00	1/1941			
		F.	92.54	0.09	5.04	2.33	86.00	6/1941			

(C) Small percentage of purple stained seed indicating Canadian origin.
** Variety required by law but not found.
* Information required by law not given.
† Indicates purity below, germination below, or excessive weed seed, depending upon column in which it is found.
(n) Certified by N. J. Agricultural Experiment Station; grown by Emerald Farms, Newton, N. J.
(a) Noxious weeds not declared but found excessive.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer when Other than Wholesale Distributor, and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test	Notes	Noxious Weed Seeds per Ounce
	BLUEGRASS—Concluded									
	WHITNEY SEED CO., Buffalo, N. Y.									
448	Kentucky, No. 3742	L.	90.29	0.20	9.40	0.20	85.00	1/1941		
	Frank Howard, Inc., Pittsfield	F.	89.39	0.48	9.94	0.19	83.00	6/1941		
973	Kentucky, No. 3738	L.	85.20	0.20	14.50	0.10	80.00	1/1941		
	W. K. Gilmore & Sons, Inc., Walpole	F.	83.90	0.20	15.80	0.10	82.00	6/1941		
	BUCKWHEAT									
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.									
824	Japanese, No. 834	L.	99.50	—	0.50	Trace	91.00	12/1940		
	Eastern States Farmers' Exchange, Great Barrington	F.	99.89	—	0.11	—	95.00	7/1941		
	ALSIKE CLOVER									
	ARTHUR R. CONE, Buffalo, N. Y.									
913	Alsike, No. 25-262	L.	97.70	0.70	0.94	1.29	81-10	1/1941	(m)	
	Essex County Cooperative Farming Association, Topsfield	F.	98.02	0.42	0.76	0.80	81-5	8/1941		
1156	Arco, No. 25-269	L.	99.25	0.20	0.25	0.30	88-5	3/1941		
	D. F. Riley, N. Hatfield	F.	99.66	0.19	0.05	0.10	91-3	8/1941		
	ALBERT DICKINSON CO., Chicago, Ill.									
798	Alsike, No. 21780	L.	99.05	0.15	0.35	0.45	81-14	1/1941		
	Bisbee Brothers, Williamsburg	F.	98.69	0.33	0.23	0.75	83-12	8/1941		
	DOUGHTEN SEED CO., Jersey City, N. J.									
561	Alsike, No. A-156	L.	97.50	0.50	0.40	1.60	75-15	2/1941		
	Adams Hardware Co., Northboro	F.	97.70	0.77	0.72	0.81	85-7	8/1941		
	THOMAS W. EMERSON CO., Boston, Mass.									
902	Alsike, No. 56	L.	98.50	0.55	0.25	0.70	74-19	1/1941		
	George H. Parker Grain Co., Danvers	F.	98.90	0.34	0.23	0.53	85-14	8/1941		
	JOHN D. LYON, INC., Belmont, Mass.									
537	Alsike	L.	98.16	0.40	0.47	0.97	85-11	3/1941		
	Middlesex County Farm Bureau, Waltham	F.	96.67†	0.19	0.47	2.67	85-8	8/1941		

	WM. G. SCARLETT & CO., Baltimore, Md.									
783	Alsike, No. 21920	L.	98.50	0.30	0.70	0.50	70–20	2/1941		
	Harry Seder, Webster	F.	98.60	0.21	0.83	0.36	74–16	8/1941		
	STANFORD SEED CO., Buffalo, N. Y.									
1010	Alsike, No. 5351	L.	98.05	0.55	0.55	0.85	85–8	3/1941		
	City Grain Co., Marlboro	F.	97.93	0.82	0.58	0.67	79–5	8/1941		
	WHITNEY SEED CO., Buffalo, N. Y.									
976	Alsike, No. 1583	L.	98.64	0.13	0.15	1.08	82–12	1/1941		
	W. K. Gilmore & Sons, Inc., Walpole	F.	99.20	0.12	0.12	0.56	76–23	8/1941		
	S. D. WOODRUFF & SONS, Orange, Conn.									
698	Alsike, No. 2254	L.	98.55	0.15	0.65	0.65	75.00	12/1940		
	Adams Hardware & Paint Co., Lowell	F.	98.33	0.30	0.39	0.98	74–20	8/1941		
	LADINO CLOVER									
	ALBERT DICKINSON CO., Chicago, Ill.									
456	Ladino Clover, No. 026522	L.	99.75	0.05	0.10	0.10	65–31	2/1941		
	Frank Howard, Inc., Pittsfield	F.	99.81	0.19	—	—	57–41	8/1941		
	RED CLOVER									
	ARTHUR R. CONE, Buffalo, N. Y.									
671	Medium Red, No. 15–334	L.	99.50	0.16	0.17	0.17	86–5	1/1941		
	Mansfield Milling Co., Mansfield	F.	99.55	0.10	0.14	0.21	91–3	8/1941		
998	Medium Red, No. 15–338	L.	99.25	0.18	0.41	0.16	81–10	2/1941		
	Farm Service Company, Needham	F.	99.18	0.31	0.35	0.16	90–3	8/1941	(a)	14 English Plantain
1130	Medium Red, No. 15–311	L.	99.25	0.29	0.05	0.41	84.00	7/1940		
	Howe Bros., Gardner	F.	98.84	0.49	0.08	0.59	91–1	8/1941		
	ALBERT DICKINSON CO., Chicago, Ill.									
797	Medium Red, No. 24697–8	L.	99.74	0.02	0.18	0.06	90–2	3/1941		
	Bisbee Brothers, Williamsburg	F.	99.78	0.16	0.06	—	91–2	8/1941		
	DURYEA SEED CO., New York, N. Y.									
1044	Red, No. 1267	L.	99.50	0.35	0.10	0.05	85–5	1/1941		
	Fred F. Smith, Inc., Reading	F.	99.15	0.45	0.20	0.20	88–8	8/1941	(a)	17 English Plantain

(m) Given formula totals more than 100 per cent.
† Indicates purity below, germination below or excessive weed seed, depending upon column in which it is found.
(a) Noxious weeds not declared but found excessive.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer when Other than Wholesale Distributor, and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test	Notes	Noxious Weed Seeds per Ounce
	RED CLOVER—Concluded									
	THOMAS W. EMERSON CO., Boston, Mass.									
109	Medium Red, No. 145	L.	99.80	0.04	0.04	0.12	81–13	1/1941		
		F.	98.03†	0.18	0.69	1.10	90–5	8/1941		
466	Medium Red	L.	99.26	0.02	0.05	0.66	79–17	1/1941		
	Carr Hardware Co., Pittsfield	F.	99.21	0.14	0.14	0.51	91–7	8/1941		
	ROSS BROS. CO., Worcester, Mass.									
205	Medium Red, No. A 179	L.	99.50	0.05	0.33	0.12	85–6	1/1941		
		F.	99.65	0.06	0.17	0.12	93–3	8/1941		
	WM. G. SCARLETT & CO., Baltimore, Md.									
784	Red, No. 22074	L.	99.25	0.20	0.50	0.05	80–10	3/1941		19 English Plantain
	Harry Seder, Webster	F.	99.02	0.08	0.50	0.40	90–5	8/1941		7 English Plantain 2 Dodder
972	Medium Red, No. 8442	L.	98.70	0.30	1.00	—	70–20	12/1940		
	W. K. Gilmore & Sons, Inc., Walpole	F.	99.23	0.10	0.67	—	81–7	8/1941		
	STANFORD SEED CO., Buffalo, N. Y.									
721	Medium Red, No. 3047	L.	99.80	0.05	0.05	0.10	95.00	3/1941		
	Butman Feed Co., Lynn	F.	99.86	0.05	0.04	0.05	96.00	8/1941		
1076	Medium Red, No. 2533	L.	99.00	0.26	0.10	0.64	90–2	3/1941		
	Brookfield Grain Co., Brookfield	F.	99.04	0.08	0.04	0.84	91–7	8/1941		
	S. D. WOODRUFF & SONS, Orange, Conn.									
699	Medium Red, No. 2259	L.	99.68	0.05	0.21	0.06	86.00	3/1941		
	Adams Hardware & Paint Co., Lowell	F.	99.85	0.02	0.11	0.02	89–2	8/1941		
	SWEET CLOVER									
	JOSEPH BRECK & SONS, Boston, Mass.									
223	White Sweet Clover, No. 8520	L.	99.32	0.12	0.18	0.38	71–18	12/1940		
		F.	96.11 WB 3.47 YB	0.04	0.08	0.30	74–1	8/1941		
	Total Melilotus spp.		99.58							

	STANFORD SEED CO., Buffalo, N. Y.									
1117	Sweet Clover, No. 7238	L.	99.50	0.06	0.22	0.22	78–12	1/1940		
	Southbridge Grain Co., Southbridge	F.	98.99 WB 0.71 YB	0.06	0.10	0.14	53–9†	8/1941	**	
	Total Melilotus spp.		99.70							
	WHITE CLOVER									
	JOSEPH BRECK & SONS, Boston, Mass.									
221	White Clover, No. 1392	L.	99.48	0.20	0.14	0.18	80–5	2/1941		
		F.	99.40	0.51	0.09	—	79–1	8/1941		
	WM. G. SCARLETT & CO., Baltimore, Md.									
786	White Clover, No. 22062	L.	96.15	0.55	0.35	2.95	75–15	2/1941		
	Harry Seder, Webster	F.	96.77	0.45	0.27	2.51	79–19	8/1941		
	WHITNEY SEED CO., Buffalo, N. Y.									
777	White Clover, No. 6144	L.	98.40	0.45	0.40	0.75	82.00	1/1941		
	Kindler's Hardware Co., Webster	F.	97.76	0.68	0.93	0.63	75–21	8/1941	(a)	57 English Plantain
	F. H. WOODRUFF & SONS, Milford, Conn.									450 English Plantain per Lb.
397	White Clover, No. G 80–8	L.	96.00	1.40	2.60	—	60–10	4/1940		
	Atlantic Distributing Co., Lowell	F.	94.53†	3.51†	1.45	0.51	56–2	8/1941	(b)	46 Dodder 7 English Plantain
956	White Dutch Standard, No. G 81-6	L.	96.90	0.45	0.70	1.95	88–9	12/1940		
	Rome Hardware Co., Rockland	F.	97.65	0.68	0.60	1.07	84–8	8/1941	(a)	39 English Plantain
	CORN									
	JOSEPH BRECK & SONS, Boston, Mass.									
1125	Yellow Sweepstakes, No. B 445 W	L.	99.00	—	1.00	—	90.00	4/1941		
		F.	99.97	—	0.03	—	92.00	7/1941		
1126	Smoky Dent, No. B 456 D	L.	99.00	—	1.00	—	97.00	2/1941		
		F.	100.00	—	—	—	96.00	7/1941		
1127	Early Sanford, No. B 483 S	L.	99.00	—	1.00	—	90.00	3/1941		
		F.	99.25	—	—	0.75	88.00	7/1941		
1128	Hybrid Red Sweepstakes, No. RW 2154	L.	99.00	—	1.00	—	90.00	3/1941		
		F.	99.86	—	0.14	—	95.00	7/1941		

(a) Noxious weeds not declared but found excessive.
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** Variety required by law but not stated.
(b) Noxious weeds declared but found excessive.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer when Other than Wholesale Distributor, and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test	Notes	Noxious Weed Seeds per Ounce
	CORN—Continued									
	ARTHUR R. CONE, Buffalo, N. Y.									
544	Yellow Sweepstakes Type, No. 80-623	L.	99.50	—	0.40	0.10	90.00	3/1941	**	
	Farm Service Co., Leominster	F.	100.00	—	—	—	95.00	7/1941		
545	Lancaster Surecrop, No. 80-631	L.	99.00	—	0.90	0.10	90.00	3/1941		
	Farm Service Co., Leominster	F.	99.95	—	0.05	—	95.00	7/1941		
672	Yellow Sweepstakes Type, No. 80-627	L.	99.50	0.10	0.40	—	90.00	3/1941	**	
	Mansfield Milling Co., Mansfield	F.	100.00	—	—	—	95.00	7/1941		
	DELTA SALES CO., Delta, Pa.									
1116	Kato Ensilage, No. 2	L.	98.00	—	2.00	—	90.00	3/1941		
	Southbridge Grain Co., Southbridge	F.	99.94	—	0.06	—	85.00	7/1941		
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.									
384	Indian Hybrid #608, No. 1771	L	99.25	—	0.75	—	95.00	1/1941		
	Eastern States Farmers' Exchange, Waltham	F.	99.96	—	0.04	—	99.00	7/1941		
385	U. S. #44, No. 841	L.	99.25	—	0.75	—	95.00	12/1940		
	Eastern States Farmers' Exchange, Waltham	F.	100.00	—	—	—	97.00	7/1941		
386	Cornell 29-3, No. 838	L.	99.25	—	0.75	—	90.00	2/1941		
	Eastern States Farmers' Exchange, Waltham	F.	99.98	—	0.02	—	99.00	7/1941		
387	Lancaster Sure Crop, No. 828	L.	99.25	—	0.75	—	88.00	12/1940		
	Eastern States Farmers' Exchange, Waltham	F.	100.00	—	—	—	89.00	7/1941		
	THOMAS W. EMERSON CO., Boston, Mass.									
91	Yellow Sweepstakes, No. 491	L.	99.00	—	—	—	90.00	2/1941		
		F.	100.00	—	—	—	84.00	7/1941		
92	Leaming, No. 472	L.	99.00	—	—	—	90.00	2/1941		
		F.	100.00	—	—	—	87.00	7/1941		
93	West Branch Sweepstakes, No. 437	L.	99.00	—	—	—	90.00	2/1941		
		F.	99.95	—	0.05	—	92.00	7/1941		

788	West Branch Sweepstakes	L.	98.00	—	—	—	85.00	*/1939	
	Harry Seder, Webster	F.	99.54	—	0.46	—	11.00†	7/1941	(c)
	CHARLES C. HART SEED CO., Wethersfield, Conn.								
621	Longfellow Flint	L.	*	—	—	—	*	*/*	
	Woodlawn Supply Co., South Hadley	F.	100.00	—	—	—	98.00	7/1941	
622	Yellow Canada	L.	99.00	—	—	—	90.00	1/1941	
	Woodlawn Supply Co., South Hadley	F.	100.00	—	—	—	97.00	7/1941	
624	Kato Ensilage	L.	*	—	—	—	*	*/*	
	Woodlawn Supply Co., South Hadley	F.	99.95	—	0.05	—	95.00	7/1941	
1139	Yellow Canada	L.	99.00	—	—	—	90.00	1/1940	
	Federal Supply Co., Northampton	F.	99.98	—	0.02	—	99.00	7/1941	
	JOHN D. LYON, INC., Belmont, Mass.								
532	Lancaster Sure Crop, No. 510	L.	99.00	—	1.00	—	90.00	2/1941	
	Middlesex County Farm Bureau, Waltham	F.	100.00	—	—	—	95.00	7/1941	
533	Westbranch Sweepstakes, No. 661	L.	99.00	—	1.00	—	90.00	3/1941	
	Middlesex County Farm Bureau, Waltham	F.	99.85	—	0.15	—	95.00	7/1941	
	PAGE SEED CO., Greene, N. Y.								
1057	Golden Sweepstakes, No. 1250	L.	99.00	—	—	—	90.00	4/1941	
	Farmers' Co-operative Exchange, Framingham	F	99.96	—	0.04	—	88.00	7/1941	
1058	Page's Westbranch Sweepstakes, No. 1010	L.	99.00	—	—	—	90.00	4/1941	
	Farmers' Co-operative Exchange, Framingham	F.	99.90	—	0.10	—	94.00	7/1941	
1080	Page's Improved Leaming, No. 1175	L.	99.00	—	—	—	88.00	4/1941	
	V. P. Levreault, South Hadley Falls	F.	99.90	—	0.10	—	82.00	7/1941	
	PERRY SEED CO., Boston, Mass.								
743	Yellow Sweepstakes	L.	99.00	—	1.00	—	90.00	4/1941	
		F.	100.00	—	—	—	96.00	7/1941	
	WM. G. SCARLETT & CO., Baltimore, Md.								
977	Yellow Sweepstakes, No. 22007	L.	98.00	0.20	1.80	—	90.00	3/1941	
	W. K. Gilmore & Sons, Inc., Walpole	F.	99.90	—	0.10	—	90.00	7/1941	

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* Information required by law not given.
(c) Wholesaler claims seed not sold by him, at least not during current year.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer when Other than Wholesale Distributor, and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test	Notes	Noxious Weed Seeds per Ounce
	CORN—Concluded									
	WM. G. SCARLETT & CO., Baltimore, Md.—Continued									
1062	Delaware Yellow Sweepstakes, No. 21987	L.	98.00	0.20	1.80	—	90.00	3/1941		
	Farmers' Co-operative Exchange, Framingham	F.	99.86	—	0.14	—	90.00	7/1941		
	STANFORD SEED CO., Buffalo, N. Y.									
1012	Leaming, No. 3299	L.	99.00	—	1.00	—	90.00	3/1941		
	City Grain Co., Marlboro	F.	99.90	—	0.10	—	94.00	7/1941		
	WHITNEY SEED CO., Buffalo, N. Y.									
773	Improved Leaming Type, No. 7313	L.	99.00	—	1.00	—	90.00	4/1941	**	
	Oxford Grain Co., Oxford	F.	99.96	—	0.04	—	93.00	7/1941		
774	Excelsior Ensilage, No. 7295	L.	99.00	0.10	0.90	—	85.00	2/1941		
	Oxford Grain Co., Oxford	F.	99.08	—	0.92	—	85.00	7/1941		
	T. W. WOOD & SONS, Richmond, Va.									
1075	Early Eureka Ensilage, No. 960	L.	99.00	—	1.00	—	90.00	3/1941		
	Brookfield Grain Co., Brookfield	F.	99.95	—	0.05	—	93.00	7/1941		
	S. D. WOODRUFF & SONS, Orange, Conn.									
610	Woodruff's Beauty, No. M 98	L.	99.00	—	1.00	—	90.00	4/1941		
	Sunshine Feed Store, Greenfield	F.	99.70	—	0.30	—	90.00	7/1941		
859	Eureka	L.	99.00	—	1.00	—	90.00	1/1941		
	Worcester Grain & Coal Co., Worcester	F.	99.95	—	0.05	—	87.00	7/1941		
860	Improved Leaming, No. 2271	L.	99.00	—	1.00	—	90.00	4/1941		
	Worcester Grain & Coal Co., Worcester	F.	99.95	—	0.05	—	90.00	7/1941		
	FESCUES									
	JOSEPH BRECK & SONS, Boston, Mass.									
213	Meadow, No. 8709	L.	98.64	1.20	0.16	—	92.00	12/1940		
		F.	98.16	1.75†	0.09	—	95.00	4/1941		
214	Chewing's, No. G 71-207	L.	99.00	0.08	0.82	0.10	90.00	9/1940		
		F.	98.83	—	0.81	0.36	94.00	5/1941		

	ALBERT DICKINSON CO., Chicago, Ill.							
454	New Zealand Chewings, No. 034589	L.	97.70	0.50	0.25	1.55	93.00	2/1941
	Frank Howard, Inc., Pittsfield	F.	98.35	0.44	0.29	0.92	92.00	6/1941
	THOMAS W. EMERSON CO., Boston, Mass.							
110	New Zealand Chewing's No. 147	L.	99.00	0.20	0.80	0.06	85.00	3/1940
		F.	98.82	0.10	0.93	0.15	91.00	5/1941
112	Sheep's, No. 113	L.	87.00	0.35	12.40	0.25	75.00	3/1940
		F.	86.44	0.32	13.20	0.04	86.00	5/1941
	JOHN D. LYON, INC., Belmont, Mass.							
376	Chewing's, No. G 71-204	L.	99.28	0.10	0.62	—	97.00	2/1941
		F.	99.71	—	0.29	—	98.00	6/1941
	ROSS BROS. CO., Worcester, Mass.							
204	Chewing's, No. A 167	L.	99.27	0.10	0.63	—	92.00	1/1941
		F.	98.97	0.05	0.98	—	96.00	4/1941
	MANGELS							
	CHARLES C. HART SEED CO., Wethersfield, Conn.							
1088	Giant Long Red	L.	*	—	—	—	*	*/*
	J. Russell & Co., Inc., Holyoke	F.	99.92	—	0.08	—	91.00	6/1941
	PAGE SEED CO., Greene, N. Y.							
225	Wurzel, Mammoth Long Red, D 7840	L.	*	—	—	—	Approx. 75.00	12/1940
	J. H. Fairbanks Co., Bridgewater	F.	99.70	—	0.30	—	88.00	6/1941
	F. H. WOODRUFF & SONS, Milford, Conn.							
539	Mammoth Long Red, No. 17210	L.	99.00	—	0.01	—	90.00	11/1940
	Farm Service Co., Leominster	F.	99.86	—	0.14	—	86.00	6/1941
	GERMAN MILLET							
	DURYEA SEED CO., INC., New York, N. Y.							
1045	German, No. 51-25	L.	99.00	0.20	0.50	0.30	81.00	1/1941
	Fred F. Smith, Inc., Reading	F.	99.28	0.20	0.21	0.31	82.00	7/1941
	GOLDEN MILLET							
	ARTHUR R. CONE, Buffalo, N. Y.							
915	Golden, No. 38-191	L.	98.75	0.55	0.45	0.25	88.00	2/1941
	Farm Service Co., Attleboro	F.	98.90	0.27	0.69	0.14	90.00	7/1941

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* Information required by law not given.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer when Other than Wholesale Distributor, and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test	Notes	Noxious Weed Seeds per Ounce
	HUNGARIAN MILLET									
	ARTHUR R. CONE, Buffalo, N. Y.									
917	Hungarian, No. 38-192	L.	98.00	0.86	1.06	0.08	85.00	2/1941		
	Farm Service Co., Attleboro	F.	98.90	0.90	0.20	—	80.00	7/1941		
	ALBERT DICKINSON CO., Chicago, Ill.									
800	Hungarian, No. 8379	L.	98.76	0.70	0.50	0.04	80.00	2/1941		
	Bisbee Brothers, Williamsburg	F.	98.82	0.95	0.23	—	78.00	7/1941		
	THOMAS W. EMERSON CO., Boston, Mass.									
107	Hungarian, No. 133	L.	98.00	1.60	0.40	—	82.00	11/1940		
		F.	97.09	2.59†	0.30	0.02	82.00	7/1941		
	JOHN D. LYON, INC., Belmont, Mass.									
1059	Hungarian	L.	98.76	0.70	0.50	0.04	80.00	2/1941		
	Farmers' Co-operative Exchange, Framingham	F.	99.05	0.65	0.30	—	87.00	7/1941		
	WM. G. SCARLETT & SONS, Baltimore, Md.									
971	Hungarian, No. 8608	L.	98.50	0.75	0.75	—	85.00	12/1940		
	W. K. Gilmore & Sons, Inc., Walpole	F.	99.52	0.25	0.21	—	90.00	7/1941		
	STANFORD SEED CO., Buffalo, N. Y.									
939	Hungarian, No. 5838	L.	98.40	1.30	0.24	0.06	87.00	1/1941		
	B. W. Brown Grain Co., Concord	F.	98.97	0.66	0.35	0.02	85.00	7/1941		
1074	Hungarian, No. 7182	L.	99.08	0.60	0.32	—	65.00	3/1941		
	Brookfield Grain Co., Brookfield	F.	98.76	0.90	0.34	—	76.00	7/1941		
	WHITNEY SEED CO., Buffalo, N. Y.									
943	Hungarian, No. 9129	L.	99.46	0.32	0.22	—	85.00	1/1941		
	Farmers' Co-operative Exchange, Framingham	F.	98.71	0.89†	0.40	—	78.00	7/1941		
	JAPANESE MILLET									
	ARTHUR R. CONE, Buffalo, N. Y.									
916	Japanese, No. 38-190	L.	97.00	2.75	0.08	0.17	85.00	2/1941		
	Farm Service Co., Attleboro	F.	97.49	2.44	0.07	—	87.00	7/1941		

	DURYEA SEED CO., New York, N. Y.							
1046	Japanese, No. 53-36	L.	98.00	1.45	0.45	0.10	90.00	2/1941
	Fred F. Smith, Inc., Reading	F.	98.36	1.18	0.46	—	94.00	7/1941
	THOMAS W. EMERSON CO., Boston, Mass.							
864	Japanese, No. 118	L.	99.00	0.10	0.80	0.10	93.00	1/1941
	Worcester Grain & Coal Co., Worcester	F.	99.39	0.08	0.53	—	92.00	7/1941
	PAGE SEED CO., Greene, N. Y.						Approx.	
974	Japanese, No. J. A. 41	L.	97.63	2.10	0.27	—	85.00	2/1941
	W. K. Gilmore & Sons, Inc., Walpole	F.	97.27	2.63	0.10	—	78.00	7/1941
1079	Japanese, No. J. C. 41	L.	95.72	4.10	0.18	—	84.00	1/1941
	V. P. Levreault, South Hadley Falls	F.	95.67	4.19	0.14	—	80.00	7/1941
	STANFORD SEED CO., Buffalo, N. Y.							
938	Japanese, No. 1428 A	L.	98.14	1.76	0.10	—	88.00	3/1941
	B. W. Brown Grain Co., Concord	F.	98.55	1.34	0.11	—	77.00†	7/1941
1014	Japanese	L.	98.00	1.84	0.16	—	88.00	3/1941
	City Grain Co., Marlboro	F.	97.97	1.97	0.06	—	82.00	7/1941
1073	Japanese, No. 1425 A	L.	98.60	1.34	0.06	—	92.00	3/1941
	Brookfield Grain Co., Brookfield	F.	98.52	1.39	0.09	—	86.00	7/1941
	WHITNEY SEED CO., Buffalo, N. Y.							
713	Japanese, No. 9156	L.	97.10	1.90	1.00	—	85.00	1/1941
	Cover Grain Co., Lowell	F.	96.42	1.92	1.66	—	82.00	7/1941
	OATS							
	E. W. BAILEY & CO., Montpelier, Vt.							
612F	Victory, No. 015-141	L.	98.50	0.25	0.50	0.75	95.00	4/1941
	J. L. Dunnell & Son, Bernardston	F.	99.78	0.02	0.20	—	96.00	8/1941
	BERKSHIRE COAL & GRAIN CO., North Adams, Mass.							
655	Victory, No. 1	L.	96.03	0.13	0.33	3.51	96.00	3/1941
	F. H. Sargent & Son, Brockton	F.	99.64	0.06	0.10	0.20	91.00	8/1941
	JOSEPH BRECK & SONS, Boston, Mass.							
495	Victory, C. M. C. No. 2	L.	96.50	0.30	0.20	0.20	95.00	3/1941
		F.	98.66	0.64†	0.14	0.56	95.00	8/1941

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1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer when Other than Wholesale Distributor, and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test	Notes	Noxious Weed Seeds per Ounce
	OATS—Concluded									
	COMMUNITY FEED STORES, South Deerfield, Mass.									
606F	Oats	L.	98.00	0.10	—	—	92.00	3/1941	**	
		F.	99.08	—	0.02	0.90	90.00	8/1941		
	ARTHUR R. CONE, Buffalo, N. Y.									
609F	Anchor Brand, Variety Unknown, 36–124	L.	98.10	0.10	1.58	0.22	90.00	2/1941	**	
	Sunshine Feed Store, Greenfield	F.	99.70	—	0.06	0.24	92.00	8/1941		
	COVER GRAIN CO., Lowell, Mass.									
712	Oats	L.	90.00	—	—	—	90.00	3/1941	**	
		F.	98.02	0.01	1.19	0.78	90.00	8/1941		
	CHARLES M. COX CO., Boston, Mass.									
611F	Wirthmore Brand-Victory, No. 3414 M	L.	96.50	1.80	0.20	1.50	95.00	3/1941		
	W. N. Potter Grain Store, Greenfield	F.	98.86	0.06	0.08	1.00	96.00	8/1941		
731	Oats	L.	96.50	1.80	0.20	1.50	95.00	*/*	**	
	Horton Grain Co., Ipswich	F.	97.62	0.50	0.74	1.14	97.00	8/1941		
978	Wirthmore Brand, Victory No. 6	L.	96.50	1.80	0.20	1.50	95.00	4/1941		
	W. K. Gilmore & Sons, Inc., Norfolk	F.	98.48	0.12	0.36	1.04	95.00	8/1941		
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.									
388	Selected, No. 3291	L.	98.00	0.10	0.65	1.25	92.00	12/1940	**	
	Eastern States Farmers' Exchange, Waltham	F.	99.62	0.01	0.25	0 12	95.00	8/1941		
1151	Cornellian, No. 796	L.	99.20	0.10	0.50	0.20	95.00	12/1940		
	Eastern States Farmers' Exchange, Northampton	F.	99.84	0.06	0.10	Trace	99.00	8/1941		
1152	Lenroc, No. 797	L.	99.20	0.10	0.50	0.20	94.00	12/1940		
	Eastern States Farmers' Exchange, Northampton	F.	99.70	0.06	0.24	—	98.00	8/1941		
	THOMAS W. EMERSON CO., Boston, Mass.									
496F	Variety Unknown, No. 175	L.	99.00	0.25	0.20	0.65	95.00	3/1941	**	
		F.	99.30	0.16	0.02	0.52	96.00	8/1941		

	JOHN D. LYON, INC., Belmont, Mass.										
377	Mammoth Cluster, No. 11	L.	99.83	0.03	—	—	95.00	2/1941			
		F.	98.36†	0.32†	0.74	0.58	94.00	8/1941	(a)	24 Brassica spp.	
523F	Swedish Select, No. 229	L.	97.00	0.25	0.85	1.90	85.00	3/1941		3 Quack grass	
		F.	95.28†	0.18	0.22	4.32	95.00	8/1941		2 Quack grass	
	PERRY SEED CO., Boston, Mass.										
741	Victory, No. 73228	L.	99.46	0.01	0.01	0.52	90.00	3/1941			
		F.	99.26	0.08	0.04	0.60	95.00	8/1941			
	RALSTON PURINA CO., St. Louis, Mo.										
607	Selected Swedish Type, No. 3-A	L.	98.00	0.20	0.75	0.80	93.00	3/1941	**		
	Checkerboard Feed Store, Greenfield	F.	98.70	—	0.64	0.66	95.00	8/1941			
608F	Victory, 2-A	L.	99.00	0.10	0.25	0.60	90.00	3/1941			
	Checkerboard Feed Store, Greenfield	F.	99.18	0.22	0.36	0.24	94.00	8/1941			
	ROSS BROS. CO., Worcester, Mass.										
209F	Victory, No. A-180	L.	99.95	—	0.05	—	99.00	1/1941			
		F.	99.85	0.01	0.14	—	95.00	8/1941			
	HARRY SEDER, Webster, Mass.										
787	Alberta	L.	*	—	—	—	*	*/*	**		
		F.	97.20	0.14	1.04	1.62	94.00	8/1941			
	PEAS										
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.										
828	Chang, No. 799	L.	99.25	—	0.75	Trace	84.00	12/1940			
	Eastern States Farmers' Exchange, Great Barrington	F.	99.60	—	0.40	—	87.00	7/1941			
	WM. G. SCARLETT & CO., Baltimore, Md.										
944	Canada, No. 8093	L.	98.00	0.20	1.80	—	94.00	10/1940			
	Farmers Co-operative Exchange, Framingham	F.	99.70	—	0.30	—	93.00	7/1941			
975	Canada, No. 7759	L.	98.00	0.20	1.80	—	72.00	4/1941			
	W. K. Gilmore & Sons, Inc., Walpole	F.	99.85	—	0.15	—	95.00	7/1941			

** Variety required but not stated.
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(a) Noxious weeds not declared but found excessive.
* Information required by law but not given.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer when Other than Wholesale Distributor, and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test	Notes	Noxious Weed Seeds per Ounce
	REDTOP									
	ASSOCIATED SEED GROWERS, INC., New Haven, Conn.									
985	Redtop, No. 28322	L.	92.37	0.13	7.47	0.03	90.00	1/1941		
	L. F. Thayer & Sons, Bellingham	F.	93.89	0.22	5.85	0.04	89.00	6/1941		
	JOSEPH BRECK & SONS, Boston, Mass.									
220	Redtop, No. 41822	L.	90.90	0.40	8.00	0.70	90.00	10/1940		
		F.	91.60	0.18	7.93	0.29	91.00	6/1941		
	ARTHUR R. CONE, Buffalo, N. Y.									
910	Redtop, No. 30-102	L.	92.00	0.13	7.61	0.26	90.00	2/1941		
	Essex County Cooperative Farming Association, Topsfield	F.	93.73	0.49†	5.22	0.56	90.00	6/1941		
918	Redtop, No. 30-105	L.	95.00	0.28	4.55	0.17	90.00	2/1941		
	Farm Service Co., Attleboro	F.	95.63	0.31	4.01	0.05	93.00	6/1941		
997	Redtop, No. 30-101	L.	95.14	0.13	4.68	0.05	90.00	2/1941		
	Farm Service Co., Needham	F.	95.18	0.24	4.52	0.06	90.00	6/1941		
	ALBERT DICKINSON CO., Chicago, Ill.									
799	Redtop, No. 41894-5	L.	95.00	0.10	4.40	0.50	93.00	2/1941		
	Bisbee Brothers, Williamsburg	F.	95.19	0.06	4.32	0.43	94.00	6/1941		
	DOUGHTEN SEED CO., Jersey City, N. J.									
450	Redtop, No. R-153	L.	98.50	0.07	1.40	0.03	92.00	1/1941		
	Frank Howard, Inc., Pittsfield	F.	98.64	0.04	1.32	—	94.00	6/1941		
	THOMAS W. EMERSON CO., Boston, Mass.									
104	Redtop, No. 141	L.	95.00	0.20	4.70	0.10	92.00	1/1941		
		F.	95.08	0.14	4.72	0.06	90.00	6/1941		
468	Redtop, No. 44	L.	90.60	0.20	6.90	1.30	90.00	1/1940		
	Carr Hardware Co., Pittsfield	F.	92.48	0.40	7.12	—	86.00	6/1941		
903	Redtop, No. 142	L.	90.80	0.30	9.80	0.10	90.00	1/1941		
	George H. Parker Grain Co., Danvers	F.	91.84	0.16	7.73	0.27	91.00	6/1941		

	JOHN D. LYON, INC., Belmont, Mass.							
374	Redtop, No. K 1420	L.	92.53	0.18	6.60	0.69	94.00	1/1941
		F.	93.09	0.23	6.33	0.35	90.00	6/1941
	MICHAEL LEONARD SEED CO., Chicago, Ill.							
804	Redtop, Fancy, No. 4323	L.	91.49	0.29	6.74	1.48	90.00	1/1941
	Glennan's Hardware, Dalton	F.	90.09	0.62	8.05	1.24	84.00	6/1941
	WM. G. SCARLETT & CO., Baltimore, Md.							
782	Redtop, No. 8210	L.	92.00	0.40	6.60	1.00	90.00	3/1941
	Harry Seder, Webster	F.	94.08	0.37	4.89	0.66	89.00	6/1941
932	Redtop, No. 8132	L.	94.00	0.50	5.10	0.40	90.00	2/1941
	W. K. Gilmore & Sons, Inc., Wrentham	F.	94.37	0.31	4.77	0.55	89.00	6/1941
942	Redtop, No. 8151	L.	94.00	0.40	5.60	—	90.00	12/1940
	Farmers' Co-operative Exchange, Framingham	F.	95.23	0.18	4.55	0.04	92.00	6/1941
	STANFORD SEED CO., Buffalo, N. Y.							
1011	Redtop, No. 2890	L.	92.09	0.27	7.18	0.46	91.00	2/1941
	City Grain Co., Marlboro	F.	92.72	0.30	6.00	0.98	85.00	6/1941
	WHITNEY SEED CO., Buffalo, N. Y.							
911	Redtop, No. 4345	L.	94.30	0.60	4.40	0.70	92.00	1/1941
	Essex County Cooperative Farming Association, Topsfield	F.	93.84	0.72	4.93	0.51	90.00	6/1941
	F. H. WOODRUFF & SONS, Milford, Conn.							
847	Redtop, Fancy, No. G 67-219	L.	*	1.67	6.28	0.39	90.00	2/1941
	E. A. Noble & Co., Stockbridge	F.	92.11	0.48	6.94	0.17	92.00	6/1941
	S. D. WOODRUFF & SONS, Orange, Conn.							
700	Redtop, Fancy, No. 2258	L.	90.85	0.78	8.18	0.10	*	1/1941
	Adams Hardware & Paint Co., Lowell	F.	89.21	0.70	10.09	—	93.00	6/1941
	ROUGH STALK MEADOW GRASS							
	ROSS BROS. CO., Worcester, Mass.							
206	Rough Stalk Meadow Grass, No. A-61	L.	88.45	0.30	11.25	—	81.00	1/1941
		F.	90.95	0.59†	8.46	—	81.00	6/1941

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1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer when Other than Wholesale Distributor, and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test	Notes	Noxious Weed Seeds per Ounce
	RYE									
	JOSEPH BRECK & SONS, Boston, Mass.									
909	Spring, No. 07699	L.	98.81	0.21	0.04	—	94.00	3/1941	**	
	Essex County Cooperative Farming Association, Topsfield	F.	99.31	0.13	0.53	0.03	95.00	7/1941		
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.									
827	Winter, No. 2661	L.	97.00	0.05	0.45	2.50	80.00	8/1940	**	
	Eastern States Farmers' Exchange, Great Barrington	F.	99.66	—	0.08	0.26	91.00	7/1941		
	ROSS BROS. CO., Worcester, Mass.									
772	Spring	L.	99.24	0.18	0.48	—	94.00	2/1941	**	
	Oxford Grain Co., Oxford	F.	99.07	0.35	0.55	0.03	94.00	7/1941		
	WM. G. SCARLETT & CO., Baltimore, Md.									
945	Spring, No. 9397	L.	98.00	0.20	1.30	0.50	90.00	3/1941	**	
	Farmers' Co-operative Exchange, Framingham	F.	98.49	—	0.23	1.28	88.00	7/1941		
	STANFORD SEED CO., Buffalo, N. Y.									
1113	Winter Rosen, No. 5666	L.	95.69	0.05	1.21	3.05	92.00	10/1940		
	Southbridge Grain Co., Southbridge	F.	98.00	0.03	0.45	1.52	94.00	7/1941		
	WHITNEY SEED CO., Buffalo, N. Y.									
715	Spring, No. 8401	L.	98.00	—	0.75	0.50	90.00	2/1941	**	
	Cover Grain Co., Lowell	F.	98.87	—	0.16	0.97	90.00	7/1941		
	RYEGRASS									
	ASSOCIATED SEED GROWERS, INC., New Haven, Conn.									
452	Common	L.	99.78	0.08	0.14	—	90.00	1/1941		
	Frank Howard, Inc., Pittsfield	F.	99.72	0.14	0.14	—	96.00	6/1941		
	JOSEPH BRECK & SONS, Boston, Mass.									
217	Perennial, No. G 442-201	L.	99.86	0.06	0.08	—	96.50	2/1941		
		F.	99.82	—	0.18	—	97.00	6/1941		
218	Common, G 40-212	L.	99.84	0.12	0.04	—	93.50	11/1940		
		F.	99.90	—	0.10	—	98.00	6/1941		

	DOUGHTEN SEED CO., Jersey City, N. J.							
451	Common, No. F303	L.	99.56	0.15	0.29	—	*	2/1941
	Frank Howard, Inc., Pittsfield	F.	99.66	0.24	0.10	—	96.00	6/1941
	THOMAS W. EMERSON CO., Boston, Mass.							
106	Domestic, No. 126	L.	99.00	0.35	0.65	—	90.00	11/1940
		F.	99.65	0.17	0.18	—	98.00	6/1941
	ROSS BROS. CO., Worcester, Mass.							
207	Domestic, No. A 164	L.	99.25	0.20	0.52	0.03	92.00	1/1941
		F.	98.57	0.23	1.17	0.03	96.00	6/1941
	WHITNEY SEED CO., Buffalo, N. Y.							
455	Domestic, No. 4863	L.	98.47	0.86	0.60	0.07	90.00	1/1941
	Frank Howard, Inc., Pittsfield	F.	97.86	0.92	1.22	—	93.00	6/1941
	SOY BEANS							
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.							
823	Cayuga, No. 794	L.	99.50	—	0.50	Trace	90.00	12/1940
	Eastern States Farmers' Exchange, Great Barrington	F.	99.78	—	0.22	—	94.00	7/1941
	WHITNEY SEED CO., Buffalo, N. Y.							
914	Manchu, No. 9505	L.	99.00	0.15	0.15	0.70	90.00	2/1941
	Essex County Cooperative Farming Association, Topsfield	F.	99.51	—	0.18	0.31	85.00	7/1941
	SUDAN GRASS							
	DURYEA SEED CO., New York, N. Y.							
1155	Sudan Grass, No. 46-37	L.	99.00	0.04	0.72	0.24	90.00	1/1941
	D. F. Riley, North Hatfield	F.	98.39	0.05	1.38	0.18	91.00	6/1941
	JOHN D. LYON, INC., Belmont, Mass.							
1060	Sudan Grass	L.	98.00	0.25	1.25	0.50	80.00	*/*
	Farmers' Co-operative Exchange, Framingham	F.	98.44	—	1.23	0.33	77.00	6/1941
	TIMOTHY							
	ASSOCIATED SEED GROWERS, INC., New Haven, Conn.							
986	Timothy, No. 28407	L.	99.00	0.05	0.83	0.12	90.00	2/1941
	L. F. Thayer & Sons, Bellingham	F.	99.80	—	0.14	0.06	90.00	7/1941

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1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer when Other than Wholesale Distributor, and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test	Notes	Noxious Weed Seeds per Ounce
	TIMOTHY—Concluded									
	JOSEPH BRECK & SONS, Boston, Mass									
222	Timothy, No. 7427	L.	99.65	—	0.25	0.05	90.00	12/1939		
		F.	99.08	0.05	0.27	0.60	86.00	7/1941		
	ARTHUR R. CONE, Buffalo, N. Y.									
912	Timothy, No. 10-274	L.	99.60	0.08	0.11	0.21	90.00	3/1941		
	Essex County Cooperative Farming Association, Topsfield	F.	99.75	0.07	0.16	0.02	95.00	7/1941	(a)	16 English Plantain
919	Timothy, No. 10-293	L.	99.60	0.07	0.16	0.17	92.00	2/1941		
	Farm Service Co., Attleboro	F.	99.67	0.16	0.08	0.09	90.00	7/1941		
1129	Timothy, No. 10-242	L.	99.60	0.05	0.18	0.17	90.00	7/1940		
	Howe Bros., Gardner	F.	99.76	0.05	0.14	0.05	82.00†	8/1941		
	ALBERT DICKINSON CO., Chicago, Ill									
453	Timothy, No. 66987	L.	99.65	0.05	0.25	0.05	92.00	3/1941		
	Frank Howard, Inc., Pittsfield	F.	99.87	—	0.13	—	90.00	7/1941		
796	Timothy, No. 66974-5	L.	99.70	0.05	0.15	0.10	90.00	3/1941		
	Bisbee Brothers, Williamsburg	F.	99.71	0.10	0.10	0.09	91.00	7/1941		
	DOUGHTEN SEED CO., Jersey City, N. J.									
560	Timothy, No. T-228	L.	99.55	0.10	0.25	0.10	90.00	1/1941		
	Adams Hardware Co., Northboro	F.	99.51	—	0.24	0.25	88.00	7/1941		
	DURYEA SEED CO., New York, N. Y.									
1078	Timothy, No. 1182	L.	99.65	0.05	0.20	0.10	90.00	11/1940		
	V. P. Levreault, South Hadley Falls	F.	99.32	0.15	0.29	0.24	84.00	7/1941		
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.									
1153	Timothy, No. 862	L.	99.55	0.05	0.25	0.15	90.00	5/1941		
	Eastern States Farmers' Exchange, Northampton	F.	99.46	0.15	0.29	0.10	92.00	7/1941		
	THOMAS W. EMERSON CO., Boston, Mass.									
730	Timothy, No 18	L.	99.60	0.04	0.40	0.06	80.00	3/1941		
	Horton Grain Co., Ipswich	F.	99.66	—	0.29	0.05	87.00	7/1941		

	JOHN D. LYON, INC., Belmont, Mass.									
373	Timothy, No. J-9920	L.	99.52	0.05	0.29	0.14	90.00	2/1941		
		F.	99.60	0.05	0.25	0.10	92.00	7/1941		
	ROSS BROS. CO., Worcester, Mass.									
1065	Timothy	L.	99.65	0.05	0.20	0.10	98.00	1/1941		
	P. A. Richard Hardware Co., Spencer	F.	99.66	—	0.24	0.10	93.00	7/1941		
	WM. G. SCARLETT & CO., Baltimore, Md.									
785	Timothy, No. 8485	L.	99.55	0.20	0.20	0.05	90.00	11/1940		9 English Plantain
	Harry Seder, Webster	F.	99.75	0.10	0.13	0.02	90.00	7/1941		6 English Plantain
941	Timothy, No. 93.92	L.	99.60	0.20	0.20	—	90.00	1/1941		
	Farmers' Co-operative Exchange, Framingham	F.	99.57	0.19	0.05	0.19	90.00	7/1941	(a)	8 English Plantain
	STANFORD SEED CO., Buffalo, N. Y.									
722	Timothy, No. 5795	L.	99.80	0.05	0.10	0.05	90.00	3/1941		
	Butman Feed Co., Lynn	F.	99.90	0.03	0.04	0.03	91.00	7/1941		
1013	Timothy, No. 5762	L.	99.60	0.10	0.15	0.15	90.00	3/1941		
	City Grain Co., Marlboro	F.	99.66	0.19	0.05	0.10	93.00	7/1941		
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.									
771	Pan American, No. 755	L.	99.61	0.09	0.15	0.25	90.00	3/1940		
	Oxford Grain Co., Oxford	F.	99.70	0.05	0.25	—	85.00	7/1941		
	WHITNEY SEED CO., Buffalo, N. Y.									
931	Pan American, No. 773	L.	99.75	0.05	0.10	0.10	89.00	1/1941		
	W. K. Gilmore & Sons, Inc., Wrentham	F.	99.56	0.05	0.34	0.05	76.00†	7/1941		
	F. H. WOODRUFF & SONS, Milford, Conn.									
848	Timothy, No. 9. 330-16	L.	97.85	0.05	2.05	0.05	92.00	2/1941		
	E. A. Noble & Co., Stockbridge	F.	99.78	0.03	0.16	0.03	92.00	7/1941		
	S. D. WOODRUFF & SONS, Orange, Conn.									
701	Timothy, No. 2257	L.	99.60	0.05	0.30	0.05	90.00	2/1941		
	Adams Hardware & Paint Co., Lowell	F.	99.69	0.05	0.13	0.13	93.00	7/1941		
	VETCH									
	DURYEA SEED CO., New York, N. Y.									
1154	Hairy, No. 43-47	L.	95.00	0.17	0.33	4.50	74-18	1/1941		
	D. F. Riley, North Hatfield	F.	99.18	0.14	0.60	0.08	85-15	6/1941		

(a) Noxious weeds not declared but found excessive.
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1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand or Trade Name of Seed, Dealer when Other than Wholesale Distributor, and Place Collected		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Germination %	Date of Test	Notes	Noxious Weed Seeds per Ounce
	VETCH—Concluded									
	JOHN D. LYON, INC., Belmont, Mass.									
536	Hairy	L.	99.09	0.01	0.02	0.48	84–6	1/1941		
	Middlesex County Farm Bureau, Waltham	F.	99.74	0.11	0.08	0.07	85–6	7/1941		
	WM. G SCARLETT & CO., Baltimore, Md.									
656	Spring, No. 8452	L.	97.50	0.25	0.25	2.00	90.00	3/1941		
	F. H. Sargent & Son, Brockton	F.	97.56	0.10	0.18	2.16	99–1	6/1941		
	WHEAT									
	ARTHUR R. CONE, Buffalo, N. Y.									
670	Winter, No. 60–83	L.	98.50	0.50	1.00	—	88.00	3/1941	**	
	Mansfield Milling Co., Mansfield	F.	99.71	—	0.21	0.08	96.00	7/1941		
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.									
826	Selected Winter, No. 441	L.	98.50	0.30	0.85	0.35	90.00	8/1940	**	
	Eastern States Farmers' Exchange, Great Barrington	F.	99.43	—	0.10	0.47	93.00	7/1941		

** Variety required by law but not stated.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand Name and Ingredients of Each Mixture, Dealer when Other than Wholesale Distributor, and Place Collected	Ingredients, % Label	Ingredients, % Found	Germination, % Label	Germination, % Found		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Date of Test	Notes	Noxious Weed Seeds per Ounce
	MIXTURES												
	SECTION 261B—Not More than Two Kinds of Agricultural Seed												
	JOSEPH BRECK & SONS, Boston, Mass.												
216	Oregon Certified Seed, No. 1740												
	Colonial Bentgrass, No. G 94-209* Found to be a Mixture					L.	96.75	3.24	0.10	—	1/1941	(m)	
						F.	95.83	0.20	3.87	0.10	6/1941		
	Ingredients: Colonial Bent Grass	96.75	—	90.50	—								
	Astoria Bent	—	77.84	—	95.00								
	Seaside Bent	—	22.16	—	88.00								
	Tag Found in Bag:												
	Astoria Bent	81.80	—	—	—		96.78	0.14	2.98	0.10	12/1940		
	Seaside Bent	18.20	—	—	—								
	GARFIELD WILLIAMSON, INC., New York, N. Y.												
1056	White Clover for Lawns, No. 4688.* Found to be a Mixture					L.	—	0.75	0.25	0.80	1/1941		
	Medford Supply Co., Medford					F.	98.33	0.93	0.30	0.44	6/1941	(a)	38 English Plantain
	Ingredients: White Clover	68.70	64.70	63–28	51–43†								
	Alsike Clover	29.50	33.63	68–19	74–16								
	JOHN D. LYON, INC., Belmont, Mass.												
372	Uncertified Colonial Bent, No. G 95-207.* Found to be a Mixture					L.	92.80	0.41	6.79	—	12/1940		
						F.	92.41	0.98†	6.37	0.24	6/1941		
	Ingredients: Colonial Bent	—	57.45	83.50	86.00								
	Seaside Bent	—	42.55	—	81.00								

* Information required by law not given.
(m) Given formula totals more than 100%.
(a) Noxious Weeds not declared but found excessive.
† Indicates purity below, germination below, excessive weed seed, percentage of ingredient found deficient after adding proper tolerance, or excessive inert material depending upon column in which it is found.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand Name and Ingredients of Each Mixture, Dealer when Other than Wholesale Distributor, and Place Collected	Ingredients, % Label	Ingredients, % Found	Germination, % Label	Germination, % Found		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Date of Test	Notes	Noxious Weed Seeds per Ounce
	SPECIAL SEED MIXTURES												
	SECTION 261C—More than Two Kinds of Agricultural Seed												
	APOTHECARIES HALL CO., Waterbury, Conn.												
465	Carr Hardware Special Mixture					L.	—	0.21	3.06	—	3/1941		
	Carr Hardware Co., Pittsfield					F.	97.63	0.13	2.17	0.07	5/1941		
	Ingredients: Kentucky Bluegrass	8.71	9.25	82.00	86.00								
	Redtop	18.48	21.38	91.00	93.00								
	Timothy	34.89	33 50	94.00	83.00†								
	Domestic Ryegrass	34.65	33.50	90.00	97.00								
	BELMONT HARDWARE CO., Springfield, Mass.												
605	Superior Grass Seed Mixture					L.	—	0.25	3.44	—	1/1941		
						F.	94.30	0.20	3.51	1.99	5/1941		
	Ingredients: Kentucky Bluegrass	18.08	8.98†	85.00	62.00†								
	Redtop	23.55	17.42†	89.00	86.00								
	Timothy	15.94	54.32 (d)	83.00	89.00								
	White Clover	9.73	3.03†	70.00	55–39†								
	Chewing's Fescue	9.90	5.67†	80.00	1.00†								
	Perennial Ryegrass	22.80	4.88†	82.00	94.00								
	JOSEPH BRECK & SONS, Boston, Mass.												
411	Breck's Good Trade Grass Seed Mixture					L.	—	1.00	12.00	—	2/1941 (m)		
	Hubert Hardware Co., Newton Highlands					F.	90.13	0.23	9.35	0.29	4/1941 (a)		6 English Plantain
	Ingredients: Kentucky Bluegrass	10.00	10.87	75.00	81.00								
	Redtop, Natural	25.00	17.05†	80.00	86.00								
	Timothy	12.00	13.27	90.00	90.00								
	Domestic Ryegrass	52.00	45.49	85.00	97.00								
	White and Alsike clovers, mixed, less than	5.00	3.45	90.00	66–30†								
564	Shady Spot Lawn Grass Mixture					L.	—	1.00	16.00	—	1/1941		
	Pill Hardware & Supply Co., Cambridge					F.	88.80	0.26	9.91	1.03	5/1941		

	Ingredients: Kentucky Bluegrass	25.00	20.94	80.00	82.00							
	Rough Stalk Meadow Grass	8.00	21.71(d)	70.00	84.00							
	Redtop, Natural	20.00	—	80.00	—							
	Meadow Fescue	15.00	7.86†	80.00	95.00							
	Seaside Bent	5.00	—	90.00	—							
	Chewing's Fescue (i)	27.00	14.27†	85.00	86.00							
	Agrostis spp. (Redtop, Colonial, and Seaside Bent)	—	24.02	—	90.00							
	BUTLER BROTHERS, Chicago, Ill.											
855	Belmont Grass Seed					L.	—	0.80	13.90	0.15	1/1941	3 Sorrel 2 English Plantain
	Baker's 5c and $1.00 Store, Hingham					F.	86.55	0.61	12.24	0.60	6/1941 (b)	17 English Plantain
	Ingredients: Kentucky Bluegrass	11.20	9.97	78.00	76.00							
	Redtop	19.02	17.75	80.00	87.00							
	Timothy	16.02	15.03	80.00	92.00							
	White Clover	0.80	0.60	75.00	68–26							
	Domestic Ryegrass	38.11	43.20	90.00	92.00							
	ARTHUR R. CONE, Buffalo, N. Y.											
705	Grass Seed Mixture AMS–81					L.	—	0.26	5.08	0.12	2/1941	
	C. B. Coburn Co., Lowell					F.	96.12	0.29	3.52	0.07	5/1941 (a)	64 English Plantain
	Ingredients: Kentucky Bluegrass	15.58	14.79	80.00	75.00							
	Redtop, Fancy	11.04	12.20	90.00	92.00							
	Timothy	38.22	41.78	90.00	91.00							
	Domestic Ryegrass	29.70	27.35	90.00	93.00							
	COMSTOCK, FERRE & CO., Wethersfield, Conn.											
781	Superfine Mixture with Clover, No. 328					L.	—	0.21	3.07	—	3/1941	
	La Palme Hardware Co., Webster					F.	97.54	0.20	2.22	0.04	5/1941	
	Ingredients: Kentucky Bluegrass	50.05	49.72	84.00	82.00							
	Redtop	29.00	—	92.00	—							
	White Dutch Clover	3.96	4.14	75.00	58–39†							
	Chewing's Fescue	9.40	9.45	80.00	94.00							
	Astoria Bent	4.31	—	90.00	—							
	Agrostis spp. (Redtop and Astoria Bent)	—	34.23	—	92.00							

† Indicates purity below, germination below, excessive weed seed, percentage of ingredient found deficient after adding proper tolerance, or excessive inert material, depending upon column in which it is found.
(d) Ingredient declared but found excessive after adding proper tolerance to amount specified.
(m) Given formula totals more than 100%.
(a) Noxious Weeds not declared but found excessive.
(i) Appears to be a mixture of fescues.
(b) Noxious Weeds declared but found excessive.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand Name and Ingredients of Each Mixture, Dealer when Other than Wholesale Distributor, and Place Collected	Ingredients, % Label	Ingredients, % Found	Germination, % Label	Germination, % Found		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Date of Test	Notes	Noxious Weed Seeds per Ounce
	SPECIAL SEED MIXTURES—Continued												
	CROSSMAN SEED CORP., East Rochester, N. Y.												
421	Pioneer Lawn Grass Seed Mixture					L.	—	0.50	7.54	0.40	1/1941		136 Eng. Plantain per lb.
	Kennedy's 5c–$1.00 Store, Millbury					F.	91.96	0.33	6.20	1.51	4/1941		10 English Plantain
	Ingredients: Kentucky Bluegrass	19.69	21.21	80.00	81.00								
	Redtop, Fancy	25.76	24.73	90.00	92.00								
	Timothy, Fancy	20.48	24.32	93.00	88.00								
	Common Ryegrass	25.63	21.70	92.00	93.00								
	DOUGHTEN SEED CO., Jersey City, N. J.												
991	Faith Lawn Grass Mixture, No. 250 X					L.	—	0.32	9.80	0.53	1/1941		
	L. W. Jacques & Sons, Inc., Milford					F.	91.02	0.30	8.30	0.38	6/1941		
	Ingredients: Kentucky Bluegrass	32.56	31.98	80.00	82.00								
	Redtop	27.65	—	90.00	—								
	White Clover	4.54	5.50	65–23	88–11								
	Bent (j)	4.70	—	90.00	—								
	Common Ryegrass	19.90	21.72	90.00	96.00								
	Agrostis spp. (Redtop, Seaside and Colonial Bent)	—	31.82	—	89.00								
	DURYEA SEED CO., INC., New York, N. Y.												
585	Quick Result Mixture, No. 31–13					L.	—	1.00	19.00	2.00	1/1941		
	Globe Hardware Co., Fall River					F.	81.58	0.68	15.70	2.04	5/1941	(a)	8 English Plantain
	Ingredients: Redtop	10.00	11.75	75.00	72.00								
	Timothy	29.00	26.43	85.00	86.00								
	Domestic Ryegrass	39.00	43.40	90.00	93.00								
	THOMAS W. EMERSON CO., Boston, Mass.												
566	Gem Lawn Seed					L.	—	0.30	5.90	—	1/1941		
	Russell Cameron Hardware Co., Cambridge					F.	93.22	0.46	6.14	0.18	5/1941		
	Ingredients: Kentucky Bluegrass	22.50	18.50	80.00	79.00								
	Rough Stalk Meadow Grass	4.65	4.94	85.00	87.00								
	Redtop	61.80	—	92.00	—								
	Astoria Bent	2.90	—	90.00	—								
	Velvet Bent	1.95	—	90.00	—								
	Agrostis spp. (Redtop, Astoria and Velvet Bent)	—	69.78	—	89.00								

633	Grass Mixture					L.	—	0.30	2.78	—	1/1941
	Cohasset Hardware Co., Cohasset					F.	97.82	0.20	1.98	—	5/1941
	Ingredients: Kentucky Bluegrass	5.10	4.17	80.00	81.00						
	Redtop	5.40	4.24	90.00	92.00						
	Timothy	58.00	58.24	82.00	89.00						
	White Clover	0.98	1.30	96.00	82–16						
	(j) Ryegrass	27.44	—	93.00	—						
	Domestic Ryegrass	—	29.87	—	98.00						
	FARM SERVICE CO., Attleboro, Mass.										
920	Farm Service Lawn Seed, Lot No. AMS–70					L.	—	0.50	9.58	0.80	2/1941
						F.	88.80	0.30	10.25	0.65	6/1941
	Ingredients: Kentucky Bluegrass	28.00	29.48	80.00	70.00†						
	Redtop	30.38	30.28	80.00	92.00						
	Timothy	9.90	10.63	90.00	90.00						
	White Clover	5.00	5.03	75–15	74–22						
	Domestic Ryegrass	15.84	13.38	92.00	95.00						
	W. T. GRANT CO., Great Barrington, Mass.										
843	Grant's Garden Center Lawn Seed, No. AMS–1101					L.	90.24	0.70	9.06	—	2/1941
	W. T. Grant Co., Great Barrington					F.	91.42	0.56	7.88	0.14	6/1941
	Ingredients: Kentucky Bluegrass	20.00	22.74	80.00	69.00†						
	Redtop	31.00	31.17	85.00	90.00						
	White Dutch Clover	2.00	1.76	85.00	61–26†						
	Domestic Ryegrass	37.24	35.75	90.00	90.00						
	CHARLES C. HART SEED CO., Wethersfield, Conn.										
502	Evergreen Mixture, No. F 141					L.	—	0.55	13.35	—	3/1941
	Buzzards Bay Hardware Co., Buzzards Bay					F.	87.73	0.74	9.42	2.11	5/1941 (a) 13 English Plantain
	Ingredients: Kentucky Bluegrass	16.15	17.62	80.00	80.00						
	Redtop	39.25	41.49	88.00	89.00						
	White Clover	1.00	1.10	90.00	73–6†						
	Domestic Ryegrass	29.70	27.52	90.00	73.00†						

(j) Term not specific.
(a) Noxious Weeds not declared but found excessive.
† Indicates purity below, germination below, excessive weed seed, percentage of ingredient found deficient after adding tolerance, or excessive inert material, depending upon column in which it is found.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand Name and Ingredients of Each Mixture, Dealer when Other than Wholesale Distributor, and Place Collected	Ingredients, % Label	Ingredients, % Found	Germination, % Label	Germination, % Found		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Date of Test	Notes	Noxious Weed Seeds per Ounce
	SPECIAL SEED MIXTURES—Continued												
	CHARLES C. HART SEED CO.—Concluded												
854	Standish Park, Gold Seal Grass Mixture, No. M-141					L.	—	0.30	1.64	—	3/1941		
	Walsh & Packard, Inc., Hingham					F.	98.04	0.10	1.86	—	6/1941		
	Ingredients: Kentucky Bluegrass	60.84	56.48	86.00	88.00								
	Redtop, Fancy	27.57	—	92.00	—								
	Chewing's Fescue	4.90	4.01	85.00	90.00								
	Colonial Bent	4.75(e)	—	90.00	—								
	Agrostis spp. (Redtop and Creeping Bent)	—	37.55(f)	—	96.00								
	ALLEN HERSOM CO., New Bedford, Mass.												
512	Grass Mixture					L.	92.70	0.45	6.65	0.20	3/1941		
						F.	92.87	0.48	6.50	0.15	5/1941		
	Ingredients: Kentucky Bluegrass	17.00	17.77	80.00	70.00†								
	Redtop	36.80	33.22	90.00	89.00								
	Timothy	9.80	10.24	88.00	91.00								
	Meadow Fescue	9.50	9.91	85.00	98.00								
	Domestic Ryegrass	19.60	21.73	90.00	91.00								
	J. OLIVER JOHNSON SEED CO., Chicago, Ill.												
632	Special Mixture S					L.	—	0.90	16.00	3.05	1/1941		
	Cohasset Hardware Co., Cohasset					F.	88.16	0.19	10.36	1.29	5/1941		
	Ingredients: Redtop, Fancy	10.00	13.51	92.00	88.00								
	Timothy	50.45	56.06	80.00	54.00†								
	Domestic Ryegrass	19.60	18.59	90.00	94.00								
723	Grass Mixture, No. LA 1026					L.	—	0.60	10.36	—	2/1941		
	Beverly Hardware Co., Beverly					F.	89.89	0.23	9.73	0.15	5/1941		
	Ingredients: Kentucky Bluegrass	32.30	33.21	75.00	73.00								
	Redtop	31.39	32.97	92.00	95.00								
	White Clover	0.60	0.70	75–15	72–23								
	Domestic Ryegrass	24.75	23.01	90.00	90.00								

	KAUFMAN HARDWARE CO., Cambridge, Mass.										
565	Grass Mixture					L.	—	1.00	9.50	2.50	2/1941
						F.	84.01	0.86	15.04†	0.09	5/1941
	Ingredients: Kentucky Bluegrass	20.00	13.90†	83.00	66.00†						
	Redtop	18.00	32.48(d)	90.00	95.00						
	Timothy	28.00	23.72	80.00	74.00						
	White Clover	1.00	0.09†	—	—						
	Domestic Ryegrass	20.00	13.82†	95.00	96.00						
	MASS. HARDWARE DISTRIBUTORS, INC., Boston, Mass.										
562	Greenlawn Grass Seed Mixture, G. S. No. 737–9					L.	—	1.50	14.50	—	3/1941
	Pill Hardware & Supply Co., Cambridge					F.	85.49	0.55	13.73	0.23	5/1941
	Ingredients: Kentucky Bluegrass	1.50	1.17	60.00	67.00						
	Redtop	5.00	5.54	70.00	86.00						
	Timothy	48.00	48.75	70.00	64.00						
	Common Ryegrass	29.50	30.03	90.00	89.00						
	METROPOLITAN SEED CORP., New York, N. Y.										
639	Red Seal Mixture, No. NY–401					L.	—	0.65	15.93	0.50	4/1941
	Reliable Hardware Co., Mattapan					F.	87.93	0.63	11.05	0.39	5/1941
	Ingredients: Kentucky Bluegrass	2.70	3.29	80.00	74.00						
	Redtop, Solid	14.25	15.26	90.00	84.00						
	Timothy	44.94	48.01	80.00	77.00						
	White Clover	0.25	0.47	90.00	88–5						
	Domestic Ryegrass	20.78	20.90	92.00	94.00						
	OSBORNE HARDWARE CO., Holyoke, Mass.										
628	Osborne's City Grass Seed Mixture, No. 136					L.	—	0.32	9.10	—	*/*
						F.	92.89	0.15	6.89	0.07	5/1941
	Ingredients: Kentucky Bluegrass	23.55	24.49	80.00	75.00						
	Redtop	27.26	26.91	90.00	92.00						
	White Clover	1.90	1.91	80–13	85–13						
	Chewing's Fescue	4.93	6.30	85.00	91.00						
	Common Ryegrass	32.94	33.28	90.00	95.00						

565	
562	Not excessive
639	(a) 12 English Plantain 1 Canada Thistle 2 Brassica sp.
628	

(e) Ingredient declared but not found.
(f) Ingredient found but not declared.
† Indicates purity below, germination below, excessive weed seed, percentage of ingredient found deficient after adding proper tolerance, or excessive inert material, depending upon column in which it is found.
(d) Ingredient declared but found excessive after adding proper tolerance to amount specified.
(a) Noxious Weeds not declared but found excessive.
* Information required by law not given.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand Name and Ingredients of Each Mixture, Dealer when Other than Wholesale Distributor, and Place Collected	Ingredients, % Label	Ingredients, % Found	Germination, % Label	Germination, % Found		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Date of Test	Notes	Noxious Weed Seeds per Ounce
	SPECIAL SEED MIXTURES—Continued												
	PEDIGREED SEED CO., New York City, N. Y.												
521	Grass Mixture, N. E. 505					L.	—	0.30	11.30	0.20	3/1941		
	Bogle Hill Hardware Co., Fall River					F.	89.93	0.40	8.79	0.88	5/1941		
	Ingredients: Kentucky Bluegrass	42.50	40.67	85.00	78.00								
	Redtop	38.70	42.22	90.00	89.00								
	Chewing's Fescue	7.00	5.58	80.00	56.00†								
	White Clover	—	1.46(f)	—	45–8								
	PERRY SEED CO., Boston, Mass.												
742	Franklin Park Mixture, No. 32					L.	90.00	0.80	8.70	0.50	2/1941		
						F.	93.05	0.18	6.45	0.32	5/1941		
	Ingredients: Kentucky Bluegrass	37.80	41.52	80.00	74.00								
	Redtop	42.60	42.31	90.00	92.00								
	White Clover	4.80	4.43	80–12	81–15								
	Chewing's Fescue	4.80	4.79	85.00	98.00								
	PHILADELPHIA SEED CO., Philadelphia, Pa.												
409	Grass Mixture, No. 288, A.M.S. 4					L.	—	0.39	8.51	1.60	1/1941		
	C. G. McMullin, Newton Highlands					F.	90.20	0.49	7.42	1.89	4/1941		
	Ingredients: Kentucky Bluegrass	29.00	28.94	80.00	77.00								
	Redtop	34.75	—	93.00	—								
	White Clover	1.95	2.23	40–50	79–20								
	Creeping Bent	5.00	—	90.00	—								
	Domestic Ryegrass	18.00	16.49	92.00	91.00								
	Agrostis spp. (Redtop and Seaside Creeping Bent)	—	42.54	—	91.00								
755	Stratford Green Grass Seed, No. 282 (AMS–4)					L.	—	0.50	10.40	—	2/1941		
	Frank Harkins Hardware, East Milton					F.	88.85	0.74	10.37	0.04	5/1941		
	Ingredients: Kentucky Bluegrrass	16.00	16.33	70.00	60.00†								
	Redtop, Fancy	35.50	37.77	92.00	98.00								
	Timothy	7.60	6.66	80.00	78.00								
	White Clover	1.00	0.90	60–25	72–16								
	Domestic Ryegrass	29.00	27.19	94.00	95.00								

	I. L. RADWANER SEED CO., New York, N. Y.										
557	Park Central Prince Code 24, Packed Order 68				L.	—	0.90	14.00	3.05	3/1941	
	City Hardware Co., Leominster				F.	74.75	1.11	22.02†	2.12	5/1941	(a) 5 English Plantain 1 Brassica sp.
	Ingredients: Redtop, Unhulled	12.00	14.12	80.00	77.00						
	Canada Bluegrass	—	9.78(f)	—	88.00						
	Timothy	50.45	29.00†	80.00	78.00						
	Italian Ryegrass	19.60	21.85	80.00	72.00†						
643	Park Central Choice Temforar—Code M, Packed Order 69				L.	—	0.50	13.20	4.00	3/1941	
	Hyde Park Supply Co., Hyde Park				F.	81.46	1.06†	14.83	2.65	5/1941	(a) 9 English Plantain
	Ingredients: Kentucky Bluegrass	8.50	0.86†	80.00	82.00						
	Redtop	39.50	22.85†	80.00	86.00						
	Canada Bluegrass	—	7.88(f)	—	88.00						
	Timothy	9.80	26.08(d)	80.00	73.00						
	Italian Ryegrass	24.50	23.79	80.00	70.00†						
	RENO SALES CO., Brooklyn, N. Y.										
568	Park Green Mixed Grass Seed				L.	—	1.00	21.50	—	1/1941	
	Cypress Hardware Stores, Allston				F.	84.22	1.15	13.19	1.44	5/1941	(a) 52 English Plantain
	Ingredients: Kentucky Bluegrass	2.00	1.45	80.00	82.00						
	Redtop, Unhulled	5.70	—	75.00	—						
	Timothy	34.30	33.92	83.00	86.00						
	Domestic Ryegrass	34.60	36.05	90.00	94.00						
	Redtop, Fancy	3.60	—	84.00	—						
	Redtop, Unhulled and Fancy	—	12.80(d)	—	85.00						
	ROSS BROS. CO., Worcester, Mass.										
879	Truegreen Lawn Seed				L.	92.78	0.46	5.12	—	2/1941	
	Spag's Hardware, Shrewsbury				F.	93.59	0.24	4.30	1.87	6/1941	
	Ingredients: Kentucky Bluegrass	38.57	40.09	84.00	85.00						
	Redtop	32.45	29.98	92.00	92.00						
	Domestic Ryegrass	21.74	23.52	92.00	94.00						

(f) Ingredient found but not declared.
† Indicates purity below, germination below, excessive weed seed, percentage of ingredient found deficient after adding proper tolerance, or excessive inert material, depending upon column in which it is found.
(a) Noxious Weeds not declared but found excessive.
(d) Ingredient declared but found excessive after adding proper tolerance to amount specified.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab No	Wholesale Distributor, Brand Name and Ingredients of Each Mixture, Dealer when Other than Wholesale Distributor, and Place Collected	Ingredients, % Label	Ingredients, % Found	Germination, % Label	Germination, % Found		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Date of Test	Notes	Noxious Weed Seeds per Ounce
	SPECIAL SEED MIXTURES—Continued												
	WM. G. SCARLETT & CO., Baltimore, Md.												
543	Greenaway Lawn Seed Mixture, No 21618					L.	—	0.50	11.55	0.20	2/1941		
	Farm Service Co., Leominster					F.	87 33	0.30	12.27	0.10	5/1941		
	Ingredients: Kentucky Bluegrass	40.50	39.71	75.00	79.00								
	Redtop	26.50	—	90.00	—								
	White Clover	1.90	2.28	—	78–16								
	Chewing's Fescue	4.85	4.85	80.00	94.00								
	(j) Bent Grass	4.40	—	85.00	—								
	(j) Ryegrass	9.60	—	90.00	—								
	Agrostis spp. (Redtop, Colonial, Creeping Bent)	—	30.59	—	86.00								
	Domestic Ryegrass	—	9.90	—	93.00								
647	Challenger Lawn Seed Mixture, No. 21973					L.	—	0.50	20.40	0.10	2/1941		
	Centre Hardware Co , Roslindale					F.	79.71	0.55	19.58	0.16	5/1941	(a)	8 English Plantain
	Ingredients: Kentucky Bluegrass	5.50	6.60	75.00	63.00†								
	Redtop	11.00	10.77	85.00	96.00								
	Timothy	13.00	11.79	85.00	83.00								
	(j) Ryegrass	49.50	—	90.00	—								
	Domestic Ryegrass	—	50.55	—	92.00								
	SHURBLOOM BULB CO., New York, N. Y.												
836	Lawn Grass Mixture					L.	—	1.00	13.40	—	1/1941		
	McLellan's Stores, Great Barrington					F.	86.33	0.56	12.76	0.35	5/1941	(a)	7 English Plantain
	Ingredients: Kentucky Bluegrass	4.00	4.12	70.00	79.00								
	Redtop Unhulled	1.50	2.52	85.00	72.00†								
	Timothy	48.40	45.06	83.00	72.00†								
	Domestic Ryegrass	32.00	34.63	90.00	95.00								
	SOUTH END HARDWARE CO., Boston, Mass.												
756	Madison Park Mixture, No. S 483–1					L.	—	1.25	17.56	—	2/1941		
						F.	82.84	0.85	15.38	0.93	5/1941	(a)	6 English Plantain
	Ingredients: Kentucky Bluegrass	2.00	1.85	80.00	79.00								
	Redtop	12.04	13.14	84.00	81.00								
	Domestic Ryegrass	34.30	32.69	90.00	90.00								
	Timothy	32.85	35.16	88.00	87.00								

	STANFORD SEED CO., Buffalo, N. Y.										
940	Lawnseed, No. 5001				L	—	0.85	15.27	—	1/1941	20 English Plantain
	B. W. Brown Grain Co., Concord				F.	85.40	0.60	13.90	0.10	6/1941	20 English Plantain
	Ingredients: Kentucky Bluegrass	17.22	16.45	80.00	71.00†						
	Redtop	28.00	27.70	85.00	87.00						
	Timothy	14.85	14.80	85.00	87.00						
	White Clover	5.00	5.46	80.00	85–6						
	Domestic Ryegrass	18.81	20.99	85.00	94.00						
	VAUGHAN'S SEED STORE, New York, N. Y.										
761	Vaughan's Private Estate Lawn Seed Mixture, No. 418				L.	—	0.25	1.75	—	2/1941	
	H. C. Winton, Winchester				F.	98.02	0.24	1.74	—	5/1941	
	Ingredients: Kentucky Bluegrass	58.31	60.85	85.00	86.00						
	Redtop	24.50	—	90.00	—						
	Astoria Bent	15.19	—	90.00	—						
	Agrostis spp. (Redtop and Astoria Bent)	—	37.17	—	96.00						
	WATERS & BROWN, Salem, Mass., AM3–8										
673	Special Lawn Seed for North Shore, BT, 6035				L.	—	0.24	6.76	0.23	—	1/1941
					F.	93.35	0.17	5.82	0.66	—	5/1941
	Ingredients: Kentucky Bluegrass	25.59	26.75	80.00	74.00						
	Redtop	42.98	—	90.00	—						
	White Clover	2.86	2.66	45–50	64–27						
	Chewing's Fescue	11.84	11.29	80.00	91.00						
	(j) Bent	9.50	—	90.00	—						
	Agrostis spp (Redtop, Creeping Bent and Colonial Bent)	—	52.65	—	91.00						
	WHITNEY SEED CO., Buffalo, N. Y.										
600	Special Mixture				L	—	1.50	13.00	2.50	2/1941	
	B. D. Rackliffe Hardware, Springfield				F.	86.06	0.40	12.98	0.56	5/1941	
	Ingredients: Kentucky Bluegrass	12.00	11.54	70.00	65.00						
	Redtop	15.00	17.23	80.00	83.00						
	Timothy	27.00	26.76	85.00	69.00†						
	White Clover	1.00	0.40	80.00	92–7						
	Domestic Ryegrass	28.00	30.13	90.00	94.00						

(j) Term not specific.
(a) Noxious Weeds not declared but found excessive.
† Indicates purity below, germination below, excessive weed seed, percentage of ingredient found deficient after adding proper tolerance, or excessive inert material, depending upon column in which it is found.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS — Continued

Lab. No.	Wholesale Distributor, Brand Name and Ingredients of Each Mixture, Dealer when Other than Wholesale Distributor, and Place Collected	Ingredients, % Label	Ingredients, % Found	Germination, % Label	Germination, % Found		Pure Seed %	Weed Seed %	Inert Matter %	Other Crop Seed %	Date of Test	Notes	Noxious Weed Seeds per Ounce
	SPECIAL SEED MIXTURES—Concluded												
	WHITNEY ECKSTEIN SEED CO., Buffalo, N. Y.												
408	Eureka Lawn Seed					L.	—	0.40	4.76	1.00	2/1941		
	Adams Hardware Co., Lowell					F.	91.74	0.62	7.50†	0.14	4/1941		
	Ingredients: Kentucky Bluegrass	40.50	40.00	85.00	78.00								
	Redtop, Fancy	28.50	—	90.00	—								
	White Clover	7.00	7.30	90.00	79–9								
	New Zealand Fescue	7.84	8.19	80.00	59.00†								
	Astoria Creeping Bent	10.00	—	90.00	—								
	Agrostis spp (Redtop and Astoria Bent)	—	36.25	—	81.00†								
	F. H. WOODRUFF & SONS, Milford, Conn.												
1009	Velvet Lawn Seed, G S No. 1182–3 AMS 1					L.	—	0.25	8.45	—	3/1941		
	Little Tree Farms, Inc., Framingham					F.	89.88	0.60†	9.45	0.07	5/1941		
	Ingredients: Kentucky Bluegrass	40.25	39.80	80.00	82.00								
	Redtop, Fancy	23.75	—	90.00	—								
	Colonial Bent	7.35	—	90.00	—								
	(k) Certified Perennial Ryegrass	19.95	19.04	90.00	96.00								
	Agrostis spp. (Redtop, Seaside and Colonial Bent)	—	31.04	—	94.00								
	S. D. WOODRUFF & SONS, Orange, Conn.												
862	Velvet Lawn Seed					L.	—	0.50	5.00	—	1/1941		
	Worcester Grain & Coal Co., Worcester					F.	93.92	0.48	5.28	0.32	6/1941		
	Ingredients: Kentucky Bluegrass	13.00	15.20	*	73.00								
	Redtop	27.00	20.48†	*	95.00								
	Timothy	24.90	29.04	*	77.00								
	Domestic Ryegrass	29.60	29.20	*	89.00								

† Indicates purity below, germination below, excessive weed seed, percentage of ingredient found deficient after adding proper tolerance, or excessive inert material, depending upon column in which it is found.
(k) Contains approximately 20% of Domestic Ryegrass—excessive for Perennial Ryegrass.
* Required by law but not stated.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1941
	ASPARAGUS				
	Standard Germination 70%				
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
616	Mary Washington Dickinson's Central Grocery, Amherst	–	—	62–9	July
	BEANS				
	Standard Germinations: Beans (Except Limas) 80% Beans (Limas) 70%				
	GRACE G. ANDERSON CO., INC., Dunkirk, N. Y.				
277	Improved Golden Wax Tilton School, Haverhill	–	—	95	June
	W. E. AUBUCHON CO., INC., Fitchburg, Mass.				
1069	Improved Golden Wax W. E. Aubuchon Co., Inc., Spencer	–	—	93	June
	W. E. AUBUCHON CO., INC., Leominster, Mass.				
551F	Burpee's Stringless	–	—	92	June
	ASSOCIATED SEED GROWERS, INC., New Haven, Conn.				
135F	Bountiful, No. 50184 W. G. Pearse & Co., Fall River	85	2/1941	93	June
	JOSEPH BRECK & SONS, Boston, Mass.				
35F	Surecrop Stringless Wax, No. 0262	–	—	95	June
295F	Bountiful Francis Brothers, Inc., Reading	–	—	78†	July
364	Dwarf Horticultural Duncan Hardware Corporation, Melrose	–	—	99	June
503	Red Valentine Marion General Store, Marion	–	—	85	June
	W. ATLEE BURPEE CO., Philadelphia, Pa.				
707	French Horticultural Bush C. B. Coburn Co., Market St., Lowell	–	—	75†	July
900	Surecrop Stringless Wax Parkers Farm Supply Co., Danvers	–	—	98	June
	COBURN SEED & SUPPLY CO., Chelmsford, Mass.				
389F	Wardwell's Wax, No. 2778	–	—	94	June
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
146F	Long Yellow Six Weeks G. W. Gardiner & Sons, Fall River	–	—	95	June
261F	Stringless Black Valentine A. E. Wordell, New Bedford	–	—	96	June
321F	Burpee's Bush Lima H. Bruckman, Lawrence	–	—	91	June
	ARTHUR R. CONE, Buffalo, N. Y.				
899	Kentucky Wonder Parkers Farm Supply Co., Danvers	90	1941	98	June
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
249F	Sure Crop Wax, No. 10618 Eastern States Farmers' Exchange, Montello	85	12/1940	97	June
250F	French Horticultural, No. 19011	85	12/1940	87	June

† Below Standard.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1941
	BEANS—Continued				
	EASTERN STATES FARMERS' EXCHANGE—Continued				
906	Geneva Red Kidney Bean, No. 19411 ..... Essex County Cooperative Farming Association, Topsfield	85	1/1941	87	June
	THOMAS W. EMERSON CO., Boston, Mass.				
71F	Bountiful, No. 2	–	—	99	June
368	Pencil Pod Black Wax ..... A. G. Patch Co., Boston	–	—	72†	July
618	Dwarf Bush Lima ..... Dickinson's Central Grocery, Amherst	–	—	97	June
720	Dwarf Horticultural ..... Butman Feed Co., Lynn	–	—	93	June
729	Golden Wax ..... John W. Goodhue Corporation, Ipswich	–	—	94	June
935	Burpee's Stringless Dwarf ..... Concord Hardware & Plumbing Supply Co., Concord	–	—	91	June
	FERRY-MORSE SEED CO., Detroit, Mich.				
433F	Black Pencil Pod Wax ..... Carlisle Hardware Co., Springfield	–	—	68†	July
570F	Tendergreen ..... Copeland Hardware Co., Taunton	–	—	85	July
638	Golden Wax, No. 38788 ..... Reliable Hardware Co , Mattapan	–	—	70†	July
642	Kentucky Wonder Wax ..... Diamond Hardware Stores, Mattapan	–	—	96	June
644	Dwarf Horticultural ..... Dine's Hardware Co., Hyde Park	–	—	94	June
	THOMAS J. GREY CO., Boston, Mass.				
53F	Bountiful	–	—	94	June
	JOSEPH HARRIS CO., INC., Rochester, N. Y.				
113F	Sure Crop Wax, No. 2180 ..... Joseph Harris Co., Inc., Cambridge	99	1941	96	June
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
240F	Green Pod Bountiful, No. B2 BH ..... Pierce Hardware Co., Taunton	–	—	98	June
413	Wardwell's Kidney Wax ..... H. B. Blye & Co., Inc., Woburn	–	—	87	July
550F	Dwarf Horticultural ..... Leominster Hardware Co., Leominster	–	—	88	June
524	Pencil Pod Wax ..... Mendelsohn's, Waltham	–	—	12†	July
664	Improved Golden Wax ..... Robert M. Cook, Hardware, Mansfield	–	—	59†	June
1144	Burpee's Bush Lima ..... Federal Supply Co., Northampton	–	—	87	June
	D. LANDRETH SEED CO., Bristol, Pa.				
323F	Stringless Green Pod ..... Frank P. Mills, Campello	–	—	95	June

† Below Standard.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1941
	BEANS—Concluded				
	MICHAEL LEONARD SEED CO., Chicago, Ill.				
596F	London Horticultural Lewis Zundell Hardware, Springfield	–	—	93	June
694	Dwarf Horticultural Stringless Winer Bros., Beverly	–	—	81	June
	NEW ENGLAND TORO CO., West Newton, Mass.				
158F	Bountiful	–	—	96	June
	THE PAGE SEED CO., Greene, N. Y.				
584F	Golden Wax Globe Hardware Co., Fall River	–	—	88–1	June
	PERRY SEED CO., Boston, Mass.				
15F	Stringless Green Pod, No. 476	–	—	94	June
	JEROME B. RICE SEED CO., Cambridge, N. Y.				
458F	Giant Stringless Green Pod Frank Howard, Inc., Pittsfield	–	—	92	June
591F	Golden Wax O. C. Alderman, Springfield	–	—	72†	June
1100	Tendergreen Faulkner Hardware Co., Palmer	–	—	99	June
	ROSS BROS. CO., Worcester, Mass.				
180F	Pencil Pod Black Wax, No. 336	97	1/1941	95	June
	THORNTON & CROUCH, Lawrence, Mass.				
306F	Pencil Pod Black Wax	–	—	91	June
	JOHN B. VARICK CO., Manchester, N. H.				
559	Golden Wax Harlow Bros., Sterling	–	—	84	June
	F. H. WOODRUFF & SONS, Milford, Conn.				
338F	Bountiful, No. 13652 Middlesex County Farm Bureau, Lowell	92	1/1940	90	June
538F	French Horticultural, No. 2–1258 Farm Service Co., Leominster	90	12/1940	84	July
733	Dwarf Horticultural, No. 2–2228 A. P. Marcorelle Co., Inc., Ipswich	–	—	97	June
946	Goddard or Boston, No. 17916 Boston Supply, Inc., Framingham	86	12/1940	84	June
	S. D. WOODRUFF & SONS, Orange, Conn.				
354F	French Horticultural, No. 302 Monroe's Seed Market, Attleboro	Approx. 90	12/1940	86	June
646	Sure Crop Black Wax Centre Hardware Co., Roslindale	–	—	90	June
651	Brittle Wax, No. 2175 New Style Hardware Co., Roslindale	89	1/1941	72‡	July
857	Yellow Eye Worcester Grain & Coal Co., Worcester	Approx. 90	1/1941	89	June
1138	Pencil Pod Black Wax, No. 2111 A. J. Bibeau Hardware Co., Gardner	–	—	93	June

† Below Standard.
‡ Below Standard and below Guarantee.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1941
	BEETS				
	Standard Germination 65%				
	GRACE A. ANDERSON CO., INC., Dunkirk, N. Y.				
279	Detroit Dark Red Tilton School, Haverhill	–	—	80	June
	ASSOCIATED SEED GROWERS, INC., New Haven, Conn.				
136F	Detroit Dark Red, No. 20805 W. G. Pearse & Co., Fall River	78	10/1940	81	June
	JOSEPH BRECK & SONS, Boston, Mass.				
36F	Early Wonder, No. B-188	–	—	82	June
297F	Detroit Dark Red Francis Brothers, Inc., Reading	–	—	82	June
526	Crosby's Egyptian Mendelsohn's, Waltham	–	—	77	June
886	Dewing's Early Blood The Welch Company, Inc., Scituate	–	—	68	July
	W. ATLEE BURPEE CO., Philadelphia, Pa.				
344	Detroit Dark Red Brownell Hardware Co., Attleboro	–	—	69	July
	COBURN SEED & SUPPLY CO., Chelmsford, Mass.				
390F	Early Wonder, No. 3100	–	—	81	June
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
147F	Boston Crosby G. W. Gardiner & Sons, Fall River	–	—	78	June
264F	Early Wonder A. E. Wordell, New Bedford	–	—	85	June
686	Edmand's Whitcomb-Carter Co., Beverly	–	—	73	June
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
1	Crosby, Early Wonder, No. 718	75	12/1940	85	July
	THOMAS W. EMERSON CO., Boston, Mass.				
72F	Crosby's Egyptian, No. 47	–	—	84	July
401	Edmand's Blood Turnip Thompson Hardware Co., Lowell	–	—	72	July
	FERRY-MORSE SEED CO., Detroit, Mich.				
423	Early Blood Turnip Carlisle Hardware Co., Springfield	–	—	76	May
569	Detroit Dark Red Copeland Hardware Co., Taunton	–	—	82	July
	FREDONIA SEED CO., Fredonia, N. Y.				
598	Detroit Dark Red Lewis Zundell Hardware, Springfield	–	—	71	July
	FRASER'S, Wellesley, Mass.				
169F	Boston Crosby	90	1/1941	91	June
	THOMAS J. GREY CO., Boston, Mass.				
54F	Crosby's Egyptian	–	—	81	July
	JOSEPH HARRIS CO., INC., Rochester, N. Y.				
114F	Detroit Dark Red, No. 435 Joseph Harris Co., Inc., Cambridge	84	1941	85	July
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
236F	Detroit Dark Red Pierce Hardware Co., Taunton	–	—	76	July
414F	Crosby's Egyptian H. B. Blye & Co., Inc., Woburn	–	—	68	July

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1941
	BEETS—Concluded				
	BUDD D. HAWKINS, Reading, Vt.				
300F	Detroit Dark Red	–	—	77	June
	Francis Brothers, Inc., Reading				
	HYGRADE SEED CO., Fredonia, N. Y.				
127F	Detroit Dark Red	–	—	79	June
	Spencer Borden School, Fall River				
	D. LANDRETH SEED CO., Bristol, Pa.				
325F	Early Wonder	–	—	84	June
	Frank P. Mills, Campello				
682	Detroit Dark Red	–	—	78	June
	Salem Hardware Co., Salem				
	MICHAEL-LEONARD SEED CO., Chicago, Ill.				
417F	Detroit Dark Red	–	—	82	July
	W. E. Aubuchon Co., Inc., Millbury				
552F	Early Egyptian	–	—	65	June
	W. E. Aubuchon Co., Inc., Leominster				
	NEW ENGLAND TORO CO., West Newton, Mass.				
159F	Crosby Egyptian	–	—	71	June
	THE PAGE SEED CO., Greene, N. Y.				
954	Detroit Dark Red, No. D2-4841	Approx. 80	1/1941	90	July
	Henry L. Sawyer Co., Framingham				
	PERRY SEED CO., Boston, Mass.				
16F	Crosby's Egyptian, No. 1143	–	—	77	July
	JEROME B. RICE SEED CO., Cambridge, N. Y.				
459F	Detroit Dark Red	–	—	81	July
	Frank Howard, Inc., Pittsfield				
505	Egyptian	62	1/1941	65	May
	Shurtleff Hardware Co., Middleboro				
593	Early Blood Turnip	–	—	86	July
	O. C. Alderman, Springfield				
	ROSS BROS. CO., Worcester, Mass.				
181F	Early Wonder, No. 125	76	1/1941	74	July
1072	Early Blood Turnip	–	—	75	July
	Harry R. Lamb, Brookfield				
	THORNTON & CROUCH, Lawrence, Mass.				
309F	Early Wonder	–	—	66	June
	F. H. WOODRUFF & SONS, Milford, Conn.				
336	Crosby's Egyptian	80	1/1940	70§	June
	Middlesex County Farm Bureau, Lowell				
528F	Detroit Dark Red, No. 17246	90	1/1941	90	May
	Middlesex County Farm Bureau, Waltham				
842	Early Wonder, No. 12671	68	11/1940	65	August
	Platt & Goslee, Great Barrington				
	S. D. WOODRUFF & SONS, Orange, Conn.				
361F	Detroit Dark Red, No. 2179	Approx. 70	12/1940	71	June
	Monroe's Seed Market, Attleboro				
652	Crosby's Egyptian	–	—	83	June
	New Style Hardware Co., Roslindale				

§ Above Standard but below Guarantee.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1941
	BROCCOLI				
	Standard Germination 75%				
	JOSEPH BRECK & SONS, Boston, Mass.				
50F	Italian Green Sprouting, No. B-191	–	—	97	May
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
2	Calabrese, No. 611	90	12/1940	95	May
	THOMAS W. EMERSON CO., Boston, Mass.				
73F	Calabrese Green Sprouting, No. 91	–	—	86	May
	FRASER'S, Wellesley, Mass.				
175F	Special Italian Propageno	70	1/1941	63(k)	May
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
665	Early Green Calabrese Robert M. Cook, Hardware, Mansfield	–	—	81	May
	THE PAGE SEED CO., Greene, N. Y.				
369	Italian Green Sprouting George E. Warren, Hardware, Braintree	Approx. 70	9/1940	68(k)	May
	PERRY SEED CO., Boston, Mass.				
32	Italian Green Sprouting, No. 118	–	—	90	May
	JEROME B. RICE SEED CO., Cambridge, N. Y.				
460F	Italian Green Sprouting Frank Howard, Inc., Pittsfield	–	—	96	May
	F. H. WOODRUFF & SONS, Milford, Conn.				
335	Calabrese, No. 14686 Middlesex County Farm Bureau, Lowell	Approx. 85	12/1939	71‡	May
527F	Calabrese, No. 18153 Middlesex County Farm Bureau, Waltham	Approx. 90	2/1941	96	May
	S. D. WOODRUFF & SONS, Orange, Conn.				
891	Spring, No. 1728 Danvers Hardware Co., Danvers	–	—	89	July
	BRUSSELS SPROUTS				
	Standard Germination 70%				
	JEROME B. RICE SEED CO., Cambridge, N. Y.				
867	**Brussels Sprouts Jaffe Hardware Co., Worcester	75	1/1941	73	July
	NORTHRUP, KING & CO., Minneapolis, Minn.				
1150	Improved Dwarf H. J. Croteau Hardware Co., Northampton	–	—	50†	July
	CABBAGE				
	Standard Germination 75%				
	ASSOCIATED SEED GROWERS, INC., New Haven, Conn.				
141F	Danish Round Head Short Stem, No. 98329 W. G. Pearse & Co., Fall River	90	12/1940	91	June
	JOSEPH BRECK & SONS, Boston, Mass.				
37F	Early Jersey Wakefield, No. 8112	–	—	95	June
1137	Early Jersey Wakefield Bibean Hardware Co., Gardner	–	—	80	July

(k) Equal to Guarantee, allowing tolerance, but below Standard.
‡ Below Standard and below Guarantee.
† Below Standard.
** Variety required by law but not stated.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1941
	CABBAGE—Continued				
	BROWNELL HARDWARE CO., Attleboro, Mass.				
342	Early Jersey Wakefield	–	—	93	June
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
265F	Holland Short Stem A. E. Wordell, New Bedford	–	—	87	June
317F	Warren's Stone Mason H. Bruckman, Lawrence	–	—	90	June
577	Drumhead Savoy C. S. Sawyer & Co., Fall River	–	—	87	June
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
3F	Copenhagen (Golden Acre), No. 611	85	12/1940	85	June
	THOMAS W. EMERSON CO., Boston, Mass.				
74F	Golden Acre, No. 108	–	—	73†	June
400	Early Wakefield Thompson Hardware Co., Lowell	–	—	83	June
603	Flat Dutch Belmont Hardware Co., Springfield	–	—	7†(c)	June
852	Stone Mason Drumhead Walsh & Packard, Inc., Hingham	–	—	80	July
	FERRY-MORSE SEED CO., Detroit, Mich.				
574	Danish Ballhead Copeland Hardware Co., Taunton	–	—	76	June
	FRASER'S, Wellesley, Mass.				
173F	Special Drumhead Savoy	90	1/1941	72‡	June
	THOMAS J. GREY CO., Boston, Mass.				
55	Copenhagen Market	–	—	79	June
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
510	Early Jersey Wakefield Allen Hersom Co., New Bedford	–	—	68†	June
808	Premium Late Flat Dutch Carr Hardware Co., Pittsfield	–	—	75	July
1039	Drumhead Savoy Revere Hardware Co., Arlington Heights	–	—	75	July
1112	Savoy Waite's Hardware Co., Southbridge	–	—	3†	July
	HYGRADE SEED CO., Fredonia, N. Y.				
291F	Copenhagen Market Tilton School, Haverhill	–	—	96	May
	D. LANDRETH SEED CO., Bristol, Pa.				
328F	Savoy Drumhead Frank P. Mills, Campello	–	—	78	May
	MICHAEL-LEONARD SEED CO., Chicago, Ill.				
419F	Premium Late Flat-Dutch W. E. Aubuchon Co., Inc., Millbury	–	—	34†	June
691	Early Jersey Wakefield Winer Bros., Beverly	–	—	89	July
1067	Danish Ballhead W. E. Aubuchon Co., Inc., Spencer	–	—	94	July

† Below Standard.
(c) Wholesaler claims this seed not purchased from him, at least during current season.
‡ Below Standard and below Guarantee.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1941
	CABBAGE—Concluded				
	NEW ENGLAND TORO COMPANY, West Newton, Mass.				
162F	Chinese	–	—	97	May
	THE PAGE SEED CO., Greene, N. Y.				
792	Danish Ballhead Gatze Hardware Co., Webster	–	—	8†(c)	July
	PERRY SEED CO., Boston, Mass.				
17	Golden Acre, No. 1805	–	—	86	June
	ROSS BROS. CO., Worcester, Mass.				
182F	Danish Ballhead, No. 281	89	1/1941	85	June
	STERLING SEED CO., Minneapolis, Minn.				
833	Late Flat Dutch McLellan Stores, Great Barrington	Packed for 1941		78	July
	F. H. WOODRUFF & SONS, Milford, Conn.				
331	Copenhagen Market, No. 13562 Middlesex County Farm Bureau, Lowell	87	10/1939	78§	June
403	Jersey Wakefield Adams Hardware & Paint Co., Lowell	–	—	88	June
443F	Mammoth Red Rock Pittsfield Hardware & Plumbing Supply Co., Pittsfield	–	—	90	June
529F	Copenhagen Market, No. 14283 Middlesex County Farm Bureau, Waltham	90	11/1940	84	May
896	Danish Ballhead Danvers Hardware Co., Danvers	–	—	27†(c)	July
1148	Premium Late Flat Dutch H. J. Croteau Hardware Co., Northampton	–	—	90	July
	S. D. WOODRUFF & SONS, Orange, Conn.				
356F	Danish Ballhead, No. 1986 Monroe's Seed Market, Attleboro	Approx. 94	12/1940	84§	June
	UNKNOWN				
863	Copenhagen Market Worcester Grain & Coal Co., Worcester	–	—	18†	July
	CARROTS				
	Standard Germination 55%				
	GRACE G. ANDERSON CO., INC., Dunkirk, N. Y.				
276F	Chantenay Tilton School, Haverhill	–	—	76	April
	ASSOCIATED SEED GROWERS, INC., New Haven, Conn.				
137F	Hutchinson, No. 87403 W. G. Pearse & Co., Fall River	64	11/1940	59	April
	JOSEPH BRECK & SONS, Boston, Mass.				
39F	Hutchinson, No. B-202	–	—	61	April
629	Long Orange, No. 5584 Cohasset Hardware Co., Cohasset	–	—	66	May
640	Danvers Half Long Robert's Supply Co., Mattapan	–	—	82	May

† Below Standard.
(c) Wholesaler claims this seed not sold by him, at least not during the current year.
§ Above Standard but below Guarantee.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1941
	CARROTS—Continued				
	W. ATLEE BURPEE CO., Philadelphia, Pa.				
345	Danvers Half Long Brownell Hardware Co., Attleboro	–	—	84	April
901	Hutchinson Parker's Farm Supply Co., Danvers	–	—	56	July
	COBURN SEED & SUPPLY CO., Chelmsford, Mass.				
391F	Hutchinson, No. 3171	–	—	57	April
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
153F	Oxheart G. W. Gardiner & Sons, Fall River	–	—	79	April
266F	Hutchinson A. E. Wordell, New Bedford	–	—	67	April
1050	Half Long Chantenay Fred F. Smith, Inc., Reading	–	—	22†(c)	July
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
251	Danvers (Red Cored), No. 618 Eastern States Farmers' Exchange, Montello	70	12/1940	61§	April
	THOMAS W. EMERSON CO., Boston, Mass.				
77F	Imperator, No. 141	–	—	78	April
718	Improved Long Orange Butman Feed Company, Lynn	–	—	88	May
	EMPIRE SEED CO., Fredonia, N. Y.				
302	Chantenay Loring Cash Market, Lawrence	–	—	71	April
619	Chantenay Woodlawn Supply Co., South Hadley	44	12/1940	61	May
	FERRY-MORSE SEED CO., Detroit, Mich.				
426F	Danvers Carlisle Hardware Co., Springfield	–	—	71	April
571F	Long Orange Copeland Hardware Co., Taunton	–	—	71	May
	FRASER'S, Wellesley, Mass.				
170F	Chantenay	80	1/1941	76	June
	THOMAS J. GREY CO., Boston, Mass.				
58F	Chantenay	–	—	76	April
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
237F	Danvers Half Long Pierce Hardware Co., Taunton	–	—	63	April
549F	Chantenay Leominster Hardware Co., Leominster	–	—	67	May
613	Hutchinson Dickinson's Central Grocery, Amherst	–	—	59	May
810	Danvers Half Long Carr Hardware Co., Pittsfield	–	—	56	July
1159	Hutchinson Sears Plumbing & Heating Co., South Deerfield	–	—	64	July
	BUDD D. HAWKINS, Reading, Vt.				
298F	Red Cored Chantenay Francis Brothers, Inc., Reading	–	—	58	April

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§ Above Standard but below Guarantee.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1941
	CARROTS—Continued				
	HYGRADE SEED CO., INC., Fredonia, N. Y.				
128F	Chantenay-Long Type Spencer Borden School, Fall River	–	—	78	April
	D. LANDRETH SEED CO., Bristol, Pa.				
326F	Hutchinson Frank P. Mills, Campello	–	—	55	June
680	Improved Danvers Half Long Salem Hardware Co., Salem	–	—	75	May
709	Long Orange, No. L 523 C. B. Coburn Co., Lowell	–	—	68	May
	MICHAEL-LEONARD SEED CO., Chicago, Ill.				
418F	Chantenay W. E. Aubuchon Co., Inc., Millbury	–	—	50†	April
	NEW ENGLAND TORO CO., West Newton				
160F	Chantenay	–	—	73	April
	A. G. PATCH CO., Boston, Mass.				
367	Long Orange	–	—	55	April
	PERRY SEED CO., Boston, Mass.				
19F	Long Orange, No. 2117	–	—	56	June
	JEROME B. RICE SEED CO., Cambridge, N. Y.				
461F	Danvers Long Pointed Frank Howard, Inc., Pittsfield	–	—	70	May
	J. B. RICE, JR., INC., Shushan, N. Y.				
587	Improved Long Orange A. J. Desmarais Hardware, Fall River	72	10/1940	72	May
	ROSS BROS. CO., Worcester, Mass.				
183F	Hutchinson, No. 393	79	1/1941	72	April
	THORNTON & CROUCH, Lawrence, Mass.				
310F	Danvers Half Long	–	—	71	April
	F. H. WOODRUFF & SONS, Milford, Conn.				
340F	Danvers Half Long, No. 17386 Winer's Hardware Co., Randolph	74	12/1940	83	April
445	Danvers Half Long Pittsfield Hardware & Plumbing Supply Co., Pittsfield	–	—	66	May
497	Danvers Half Long, No. 17988 Kingston Hardware Co., Kingston	Approx. 53	12/1940	60	May
522	Improved Long Orange, No. 17986 A. J. Desmarais Hardware, Fall River	–	—	59	May
534	Hutchinson, No. 1-6172 Middlesex County Farm Bureau, Waltham	–	—	68	May
	S. D. WOODRUFF & SONS, Orange, Conn.				
230	Hutchinson, No. 1736 J. H. Fairbanks Co., Bridgewater	–	—	73	April
355F	Danvers Half Long, No. 2178 Monroe's Seed Market, Attleboro	72	12/1940	68	April
650	Danvers Half Long, No. 2015 New Style Hardware Co., Roslindale	–	—	78	May
704	Danvers Adams Hardware & Paint Co., Lowell	–	—	71	May

† Below Standard.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1941
	CARROTS—Concluded				
	S. D. WOODRUFF & SONS—Continued				
869	Woodruff Early Branch Sadick Hardware & Paint Co., Worcester	–	—	76	July
895	Hutchinson, No. 1736 Danvers Hardware Co., Danvers	78	12/1938	64§	August
	WOODWORTH-BRADLEY, INC., Providence, R. I.				
349F	Chantenay Hammond Hardware Co., Attleboro	–	—	49†	June
	CAULIFLOWER				
	Standard Germination 75%				
	JOSEPH BRECK & SONS, Boston, Mass.				
51	Snowball, No. B-105	–	—	85	May
	THOMAS W. EMERSON CO., Boston, Mass.				
75	Master Snowball, No. 154	–	—	66†	May
	FERRY-MORSE SEED CO., Detroit, Mich.				
245F	Early Snowball R. E. Cobb Co., Weymouth	–	—	75	May
	THOMAS J. GREY CO., Boston, Mass.				
56	Snowball	–	—	89	May
	THE PAGE SEED CO., Greene, N. Y.				
224	Early Snowball J. H. Fairbanks Co., Bridgewater	75	1940	62‡	May
	PERRY SEED CO., Boston, Mass.				
34	Early Snowball, No. 1924	–	—	91	May
	NORTHRUP, KING & CO., Minneapolis, Minn.				
210	Early Snowball Revere Hardware & Supply Co., Revere	–	—	62†	May
	JEROME B. RICE SEED CO., Cambridge, N. Y.				
231	Early Snowball Pierce Hardware Co., Taunton	75	1/1941	69(k)	May
	CELERY				
	Standard Germination 55%				
	JOSEPH BRECK & SONS, Boston, Mass.				
38	Giant Pascal, No. B 208	–	—	69	May
849	Giant Pasguale J. H Murray, Hardware, East Weymouth	–	—	55	July
	W. ATLEE BURPEE CO., Philadelphia, Pa.				
994	Giant Pascal Casey's Hardware, Milford	–	—	60	July
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
318	Boston Market H. Bruckman, Lawrence	–	—	70	May
578	Golden Self Blanching C. S. Sawyer & Co., Fall River	–	—	0†(c)	May
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
4	Golden Plume, No. 618	72	12/1940	66	May

§ Above Standard but below Guarantee.
† Below Standard.
‡ Below Standard and Below Guarantee.
(k) Equal to Guarantee, allowing tolerance, but below Standard.
(c) Wholesaler claims this seed not purchased from him, at least not during the current year.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1941
	CELERY—Concluded				
	THOMAS W. EMERSON CO., Boston, Mass.				
76	Giant Pascal, No. 168	–	—	68	May
	THOMAS J. GREY CO., Boston, Mass.				
57	Easy Blanching	–	—	80	May
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
1038	Giant Pascal Revere Hardware Co., Arlington Heights	–	—	56	July
1140	Golden Plume Federal Supply Co., Northampton	–	—	50†	July
	LITTLE TREE FARMS, Framingham Center, Mass.				
1002	Giant Pascal	–	—	35†	August
	MICHAEL-LEONARD SEED CO., Chicago, Ill.				
696	White Plume or Self Blanching Winer Bros., Beverly	–	—	85	May
	THE PAGE SEED CO., Greene, N. Y.				
802	Giant Pascal C. O. Carlson, Goshen	80	1940	74	August
	PERRY SEED CO., Boston, Mass.				
18	Summer Pascal, No. 2221	–	—	84	May
	F. H. WOODRUFF & SONS, Milford, Conn.				
950	Golden Self Blanching Boston Supply, Inc., Framingham	–	—	2†	July
958	Giant Pascal Rome Hardware Co., Rockland	–	—	74	July
	COLLARDS				
	Standard Germination 80%				
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
580	Georgia or Creole C. S. Sawyer & Co., Fall River	–	—	90	June
	THE PAGE SEED CO., Greene, N. Y.				
663	Georgia Southern R. G. Watt, North Easton	70	1940	62(k)	July
	CORN				
	Standard Germination 75%				
	ASSOCIATED SEED GROWERS, INC., New Haven, Conn.				
138F	P-39 Whipcross, No. 96105 W. G. Pearse & Co., Fall River	90	12/1940	97	May
	W. E. AUBUCHON CO., INC., Fitchburg, Mass.				
1070	Golden Bantam W. E. Aubuchon Co., Inc., Spencer	–	—	99	June
	JOSEPH BRECK & SONS, Boston, Mass.				
40	Blended Yellow Hybrids B, 272	–	—	93	May
296F	Golden Bantam Francis Brothers, Inc., Reading	–	—	96	May
519	Whipple's Early Bogle Hill Hardware Co., Fall River	–	—	93	May
634	Golden Bantam, No. 5765 E. M. Fleming, Cohasset	–	—	98	May

† Below Standard.
(k) Equal to Guarantee, allowing tolerance, but below Standard.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1941
	CORN—Continued				
	JOSEPH BRECK & SONS—Continued				
887	Early 8 Row Golden Bantam The Welch Co., Scituate	–	—	88	June
	W. ATLEE BURPEE CO., Philadelphia, Pa.				
567	Burpee's Golden Bantam Russell Cameron Hardware Co., Cambridge	–	—	97	May
706	Golden Sunshine C. B. Coburn Co., Lowell	–	—	99	May
	COBURN SEED & SUPPLY CO., Chelmsford, Mass.				
392F	Golden Hummer, No. 3182	–	—	98	May
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
150F	Span Cross, No. 39 G. W. Gardiner & Sons, Fall River	–	—	86	May
262F	Bantam Evergreen A. E. Wordell, New Bedford	–	—	94	May
668	Golden Bantam W. C. Fuller Co., Mansfield	–	—	97	May
930	Golden Sunshine Franklin Hardware Co., North Attleboro	–	—	93	June
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
246F	Marcross 13.6, No. 14511–4520 Eastern States Farmers' Exchange, Montello	85	12/1940	96	May
247F	Marcross 39.13, No. 14511 Eastern States Farmers' Exchange, Montello	95	12/1940	98	May
248F	Span Cross 13, No. 1211 Eastern States Farmers' Exchange, Montello	95	1/1941	95	May
	THOMAS W. EMERSON CO., Boston, Mass.				
78F	Marcross 13.6, No. 194	–	—	93	May
601	White Evergreen Belmont Hardware Co., Springfield	–	—	1†(c)	May
851	Golden Sunshine Walsh & Packard, Inc., Hingham	–	—	76	June
933	Golden Sunshine The Pettee Co., Sharon	–	—	96	June
	FERRY-MORSE SEED CO., Detroit, Mich.				
212	Golden Bantam Revere Hardware & Supply Co., Revere	–	—	96	May
425	Golden Bantam Carlisle Hardware Co., Springfield	–	—	75	May
434	Bantam Evergreen Carlisle Hardware Co., Springfield	–	—	91	May
	THOMAS J. GREY CO., Boston, Mass.				
59F	Golden Cross Bantam	–	—	93	May
	JOSEPH HARRIS CO., Rochester, N. Y.				
120F	Golden Cross Bantam, No. 1245 Joseph Harris Co., Cambridge	92	1941	93	May
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
232F	Span Cross 4.13 Pierce Hardware Co., Taunton	–	—	99	May

† Below Standard.
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1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1941
	CORN—Continued				
	CHARLES C. HART SEED CO.—Continued				
511	Whipple's Early Allen Hersom Co., New Bedford	–	—	83	May
525	Early Golden Bantam Mendelsohn's, Waltham	–	—	81	May
546	Golden Sunrise Leominster Hardware Co., Leominster	–	—	92	May
623	Golden Early Market Woodlawn Supply Co., South Hadley	–	—	89	June
880	Stowell's Evergreen Waite Hardware Co., Shrewsbury	–	—	89	June
1110	Golden Giant Waite Hardware Co., Southbridge	–	—	75	June
1142	Golden Giant Federal Supply Co., Northampton	–	—	89	June
	D. LANDRETH SEED CO., Bristol, Pa.				
678	Golden Sunshine Salem Hardware Co., Salem	86 or better	2/1941	84	May
714	Golden Hummer Cover Grain & Feed Co., Lowell	–	—	83	May
790	Whipple's Early Yellow Harry Seder, Webster	–	—	91	May
	LITTLE TREE FARMS, Framingham Center, Mass.				
1008	Bantam Evergreen	–	—	90	June
	MICHAEL-LEONARD SEED CO., Chicago, Ill.				
572	Whipple's Early Yellow Copeland Hardware Co., Taunton	–	—	91	May
806	Golden Sunshine John S. Glennan Hardware, Dalton	–	—	93	June
	THE PAGE SEED CO., Greene, N. Y.				
227F	Whipple's Early Yellow B 31-140 J. H. Fairbanks Co., Bridgewater	88	—	91	May
514	Golden Bantam, B 7-3941 Bourassa Hardware Store, New Bedford	88	1/1941	92	May
955	Golden Bantam Henry L. Sawyer Co., Framingham	–	—	96	June
	PERRY SEED CO., Boston, Mass.				
20F	Golden Cross Bantam, No. 2658	–	—	93	May
	JEROME B. RICE SEED CO., Cambridge, N. Y.				
463F	Golden Bantam, No. 36706 Frank Howard, Inc., Pittsfield	–	—	83	May
506	Bantam Evergreen Shurtleff Hardware Co., Middleboro	–	—	83	May
	ROSS BROS. CO., Worcester, Mass.				
184F	Market Hybrid, No. 313	98	1/1941	96	May
1071	Golden Bantam Harry R. Lamb, Brookfield	–	—	92	June
	THORNTON & CROUCH, Lawrence, Mass.				
307F	Whipple's Early Yellow	–	—	95	May
	F. H. WOODRUFF & SONS, Milford, Conn.				
440F	Golden Bantam, No. 14474 Pittsfield Hardware & Plumbing Supply Co., Pittsfield	–	—	99	May

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1941
	CORN—Concluded				
	F. H. WOODRUFF & SONS—Continued				
517F	Golden Bantam 8 Row, No. 17612	97	11/1940	94	May
	Farm Service Co., Fall River				
518F	Golden Giant, No. 17661	95	12/1940	95	May
	Farm Service Co., Fall River				
535	Hybrid Sweet Corn—Golden Cross Bantam, No. 18169	Approx. 95	3/1941	92	May
	Middlesex County Farm Bureau, Waltham				
674	Whipple's Early Yellow	–	—	96	May
	B. F. Hill Co., Salem				
	S. D. WOODRUFF & SONS, Orange, Conn.				
353F	Golden Giant, No. 2114	80	12/1940	47‡	May
	Monroe's Seed Market, Attleboro				
653	Country Gentleman, No. 2084	–	—	93	May
	New Style Hardware Co., Roslindale				
645	Golden Bantam, No. 2082	–	—	98	May
	Center Hardware Co., Roslindale				
865	Woodruff's Extra Early Yellow, No. 200	90	1/1941	94	June
	Worcester Grain & Coal Co., Worcester				
	CUCUMBER				
	Standard Germination 80%				
	GRACE G. ANDERSON CO., INC., Dunkirk, N. Y.				
278F	Long Green	–	—	93	May
	Tilton School, Haverhill				
	ASSOCIATED SEED GROWERS, INC., New Haven, Conn.				
139F	A & C, No. 70019	90	1/1941	87	June
	W. G. Pearse & Co., Fall River				
	JOSEPH BRECK & SONS, Boston, Mass.				
41F	Davis Perfect, No. B 123	–	—	98	June
635	Long Green	–	—	84	June
	Arthur M. Justice, Hardware, East Weymouth				
	W. ATLEE BURPEE CO., Philadelphia, Pa.				
711	London or Improved Long Green	–	—	99	June
	C. B. Coburn Co., Lowell				
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
322	White Spine	–	—	88	May
	H. Bruckmann, Lawrence				
669	Improved White Spine	–	—	87	June
	W. C. Fuller Co., Mansfield				
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
252F	Straight 8, No. 611	90	12/1940	88	June
	Eastern States Farmers' Exchange, Montello				
	THOMAS W. EMERSON CO., Boston, Mass.				
79F	Ace, No. 238	–	—	92	June
684	White Spine	–	—	78†	June
	Salem Hardware Co., Salem				
	FERRY-MORSE SEED CO., Detroit, Mich.				
436	Improved Long Green	–	—	88	May
	Carlisle Hardware Co., Springfield				

‡ Below Standard and below Guarantee
† Below Standard.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1941
	CUCUMBER—Concluded				
	FRASER'S, Wellesley, Mass.				
171F	Improved Long Green	90	1/1941	92	June
	THOMAS J. GREY CO., Boston, Mass.				
60F	Grey's, A-1	–	—	98	June
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
238F	Ace Pierce Hardware Co., Taunton	–	—	94	May
547	Improved White Spine Leominster Hardware Co., Leominster	–	—	96	June
809	Improved Long Green Carr Hardware Co., Pittsfield	–	—	90	July
837	Early White Spine F. H. Turner & Co., Great Barrington	–	—	83	July
	BUDD D. HAWKINS, Reading, Vt.				
884	Improved Long Green Northboro Hardware Co., Northboro	–	—	82	July
	HYGRADE SEED CO., INC., Fredonia, N. Y.				
292	Early Fortune Tilton School, Haverhill	–	—	91	June
	D. LANDRETH SEED CO., Bristol, Pa				
327F	Straight 8 Frank P. Mills Co., Campello	–	—	90	May
	MICHAEL-LEONARD SEED CO., Chicago, Ill.				
555	Boston Pickling W. E. Aubuchon Co., Inc, Leominster	–	—	96	June
	THE PAGE SEED CO., Greene, N. Y.				
791	Long Green Gatze Hardware Co., Webster	–	—	87	June
	PERRY SEED CO., Boston, Mass.				
31F	Davis Perfect, No. 2891	–	—	90	June
	ROSS BROS. CO., Worcester, Mass.				
185F	Long Green, No. 269	97	1/1941	94	June
	F. H. WOODRUFF & SONS, Milford, Conn.				
734	Improved White Spine A. P. Marcorelle Co., Inc., Ipswich	–	—	93	June
775	Improved Long Green, No. 8-127 Kindler's Hardware Co., Webster	90	11/1940	88	June
812	Woodruff Hybrid, No. 8-95 Peirson Hardware Co., Pittsfield	–	—	91	July
	S. D. WOODRUFF & SONS, Orange, Conn				
359	White Spine, No. 1722M Monroe's Seed Market, Attleboro	85	12/1940	80	June
703	Boston Pickling Adams Hardware & Paint Co., Lowell	95	12/1940	97	June
868	Boston Pickling Sadick Hardware & Paint Co., Worcester	–	—	96	July
	DANDELION				
	Standard Germination 45%				
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
13	Arlington Broadleaf, No. 8411	95	12/1940	96	May

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1941
	DANDELION—Concluded				
999	THOMAS W. EMERSON CO., Boston, Mass. Common Swartz Hardware Co., Newton	–	—	0†(c)	June
1133	BUDD D. HAWKINS, Reading, Vt. Improved Thick Leaved Bengston Hardware Co., Gardner	–	—	3†	June
660	ROSS BROS. CO., Worcester, Mass. Catalogna A. I. Task Co., Brockton	–	—	61	May
	EGG PLANT				
	Standard Germination 60%				
145	ASSOCIATED SEED GROWERS, INC., New Haven, Conn. Black Beauty, No. 28289 W. G. Pearse & Co., Fall River	68	12/1940	84	May
10	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass. Black Beauty 15A–No. 12017	85	12/1940	89	May
430	FERRY–MORSE SEED CO., Detroit, Mich. Improved Large Purple Carlisle Hardware Co., Springfield	–	—	87	May
235	CHARLES C. HART SEED CO., Wethersfield, Conn. Black Beauty Pierce Hardware Co., Taunton	–	—	75	May
996	N. Y. Purple Marcy Hardware Store, Needham	–	—	73	July
	ENDIVE				
	Standard Germination 70%				
993	W. ATLEE BURPEE CO., Philadelphia, Pa. Broad Leaved Batavian Casey's Hardware Co., Milford	–	—	86	June
11	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass. Green Curled Ruffec, No. 611	90	12/1940	94	May
620	EMPIRE SEED CO., Fredonia, N. Y. Below Standard Moss Curled Woodlawn Supply Co., South Hadley	32	12/1940	47	June
415	COMSTOCK, FERRE & CO., Wethersfield, Conn. Green Curled Bell Hardware Co., Stoneham	–	—	88	May
431	FERRY–MORSE SEED CO., Detroit, Mich. Broad Leaved Batavian Carlisle Hardware Co., Springfield	–	—	85	May
630	FRASER'S, Wellesley, Mass. Broad Leaved Batavian Cohasset Hardware Co., Cohasset	Approx. 80	1/1941	92	June
876	ROSS BROS. CO., Worcester, Mass. Moss Curled Spag's Hardware, Shrewsbury	–	—	94	June
927	WOODWORTH–BRADLEY, INC., Providence, R. I. Escarole Broad Leaf Franklin Hardware Co., North Attleboro	–	—	82	June

† Below Standard.
(c) Wholesaler claims this seed not sold by him, at least not during current year.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Date	Germination Found %	Month of Test 1941
	KALE				
	Standard Germination 75%				
579	COMSTOCK, FERRE & CO., Wethersfield, Conn. Tall Curled Scotch C. S. Sawyer & Co., Fall River	–	—	53†(c)	June
	KOHLRABI				
	Standard Germination 75%				
14	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass. White Vienna, No. 611	85	12/1940	80	June
599	JEROME B. RICE SEED CO., Cambridge, N. Y. Early White Vienna B. D. Rackliffe, Springfield	80	1/1941	88	June
	LEEK				
	Standard Germination 60%				
1040	FERRY-MORSE SEED CO., Detroit, Mich. Broad Flag C. K. Wanamaker, Arlington Heights	Packed for 1941	—	91	April
1149	NORTHRUP, KING & CO., Minneapolis, Minn. American Flag H. J. Croteau Hardware Co., Northampton	–	—	56†	August
	LETTUCE				
	Standard Germination 80%				
281	GRACE G. ANDERSON CO., INC., Dunkirk, N. Y. Early Prizehead Tilton School, Haverhill	–	—	91	May
140F	ASSOCIATED SEED GROWERS, INC., New Haven, Conn. Imperial 44, No. 26290 W. G. Pearse & Co., Fall River	90	11/1940	77‡	May
962	JOSEPH BRECK & SONS, Boston, Mass. Big Boston Hall & Torrey, Rockland	–	—	82	June
725	W. ATLEE BURPEE CO., Philadelphia, Pa. N. Y. #12 John W. Goodhue Corporation, Ipswich	–	—	95	June
267F	COMSTOCK, FERRE & CO., Wethersfield, Conn. N. Y. #12 A. E. Wordell, New Bedford	–	—	97	May
273	Imperial 847 Jerry's Hardware Co., New Bedford	–	—	98	May
319	Big Boston H. Bruckman, Lawrence	–	—	78†(c)	May
416	Black Seeded Tennisball Bell Hardware Co., Stoneham	–	—	27†(c)	June
688	May King Whitcomb-Carter Co., Beverly	–	—	98	June

† Below Standard.
(c) Wholesaler claims this seed not purchased from him, at least during current season.
‡ Below Standard and below Guarantee.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Date	Germination Found %	Month of Test 1941
	LETTUCE—Continued				
	CROSMAN SEED CORPORATION, East Rochester, N. Y.				
1121	Iceberg	80	1941	80	June
	Perron & Co., Southbridge				
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
5F	N. Y. 515, No. 718	95	12/1940	95	June
259	Imperial 847, No. 719	90	12/1940	89	June
	Eastern States Farmers' Exchange, Montello				
907	N. Y. #12, No. 718	85	12/1940	94	June
	Essex County Cooperative Farming Association, Topsfield				
	THOMAS W. EMERSON CO., Boston, Mass.				
80F	Big Boston, No. 294	–	—	82	May
398	Black Seeded Tennisball	–	—	54†(c)	May
	Thompson Hardware Co., Lowell				
602	Simpson's Early Curled	–	—	35†(c)	May
	Belmont Hardware Co., Springfield				
685	New York or Wonderful	–	—	97	May
	Salem Hardware Co., Salem				
726	Big Boston	–	—	92	June
	John W. Goodhue Corporation, Ipswich				
	EMPIRE SEED CO., Fredonia, N. Y.				
301	N. Y. Iceberg	56	12/1940	60	June
	Loring Cash Market, Lawrence				
	FERRY-MORSE SEED CO., Detroit, Mich.				
424	N. Y. (Iceberg Type)	–	—	10†(c)	June
	Carlisle Hardware Co., Springfield				
575	Big Boston	–	—	37†(c)	June
	Copeland Hardware Co., Taunton				
	FRASER'S, Wellesley, Mass.				
176F	Iceberg	95	1/1941	94	June
	FREDONIA SEED CO., Fredonia, N. Y.				
582	Early Curled Silesia	–	—	74†	May
	C. S. Sawyer & Co., Fall River				
	THOMAS J. GREY CO., Boston, Mass.				
61F	Big Boston	–	—	95	May
	JOSEPH HARRIS CO., INC., Rochester, N. Y.				
115F	Imperial 847, No. 673	99	1941	99	May
	Joseph Harris Co., Inc., Cambridge				
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
239F	N. Y. #12	–	—	96	May
	Pierce Hardware Co., Taunton				
515	Big Boston Head	–	—	96	May
	C. F. Delano, Fairhaven				
548	Prize Head	–	—	86	May
	Leominster Hardware Co., Leominster				
615	Simpson	–	—	84	May
	Dickinson's Central Grocery, Amherst				
	BUDD D. HAWKINS, Reading, Vt.				
1134	Early Prizehead	–	—	99	June
	Bengston Hardware Co., Gardner				

† Below Standard.
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1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1941
	LETTUCE—Continued				
	HYGRADE SEED CO., Fredonia, N. Y.				
129F	Grand Rapids Spencer Borden School, Fall River	–	—	97	May
	MICHAEL-LEONARD SEED CO., Chicago, Ill.				
693	May King Winer Brothers, Beverly	–	—	25†	June
980	Big Boston Franklin Hardware & Plumbing Supply Co., Franklin	–	—	13†	June
989	Improved Hanson L. N. Jacques & Sons, Inc., Milford	–	—	99	June
1066	Iceberg W. E. Aubuchon Co., Inc., Spencer	–	—	71†	June
	NEW ENGLAND TORO CO., West Newton, Mass.				
161F	Big Boston	–	—	99	June
	THE PAGE SEED CO., Greene, N. Y.				
795	Black Seeded Simpson Gatzke Hardware Co., Webster	–	—	1†	June
	PERRY SEED CO., Boston, Mass.				
21	Perry's Special Dark Green Romaine, No. 3721	–	—	96	June
	JEROME B. RICE SEED CO., Cambridge, N. Y.				
504	Prizehead Early Shurtleff Hardware Co., Middleboro	75	1/1941	85	May
595	Iceberg O. C. Alderman, Springfield	–	—	80	May
	J. B. RICE, JR., INC., Shushan, N. Y.				
588	Iceberg A. J. Desmarais, Hardware, Fall River	Approx. 85	10/1940	88	May
	ROSS BROS. CO., Worcester, Mass.				
186F	N. Y. #12, No. 132	97	1/1941	98	May
659	Prizehead A. I. Task Co., Brockton	–	—	99	June
1063	New York or Wonderful P. A. Richard Hardware Co., Spencer	–	—	99	June
	STERLING SEED CO., Minneapolis, Minn.				
834	Grand Rapids McLellan Stores, Great Barrington	Packed for	1941	80	June
970	Improved Hansen Head W. T. Grant Co., Rockland	–	—	80	June
	VAUGHAN'S SEED STORE, New York City				
1054	Grand Rapids Foreing H. W. Cogger, Reading	–	—	96	June
	F. H. WOODRUFF & SONS, Milford, Conn.				
332	Special White Boston 1-148 Middlesex County Farm Bureau, Lowell	96	11/1939	97	May
341	Big Boston, No. 13117 Winer's Hardware Co., Randolph	90	12/1940	99	May
405	Iceberg Adams Hardware & Paint Co., Lowell	–	—	3†	June
407	Big Boston Adams Hardware & Paint Co., Lowell	–	—	96	May

† Below Standard.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Date	Germination Found %	Month of Test 1941
	LETTUCE—Concluded				
	F. H. WOODRUFF & SONS—Continued				
530F	White Boston 1-148 ..... Middlesex County Farm Bureau, Waltham	Approx. 90	11/1940	99	May
839	White Seeded Simpson ..... Platt & Goslee, Great Barrington	–	—	87	June
893	Iceberg ..... Danvers Hardware Co., Danvers	–	—	89	June
	S. D. WOODRUFF & SONS, Orange, Conn.				
1132	Black Seeded Simpson ..... Bengston Hardware Co., Gardner	–	—	77†	June
	WHOLESALER UNKNOWN				
926	Prizehead ..... Franklin Hardware Co., North Attleboro	–	—	0†	June
	MUSKMELON				
	Standard Germination 75%				
	JOSEPH BRECK & SONS, Boston, Mass.				
499	Emerald Gem ..... J. E. Jordon Co., Plymouth	–	—	85	June
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
260	Emerald Gem 21 A 1317 ..... Eastern States Farmers' Exchange, Montello	85	12/1940	94	June
	MICHAEL-LEONARD SEED CO., Chicago, Ill.				
981	Banana ..... Franklin Hardware & Plumbing Supply Co., Franklin	–	—	82	July
	JEROME B. RICE SEED CO., Cambridge, N. Y.				
929	Rockford ..... Franklin Hardware Co., North Attleboro	–	—	80	July
	F. H. WOODRUFF & SONS, Milford, Conn.				
959	Delicious Early Bender ..... Rome Hardware Co., Rockland	–	—	97	July
	ONIONS				
	Standard Germination 70%				
	GRACE G. ANDERSON CO., INC., Dunkirk, N. Y.				
280	Yellow Globe Danvers ..... Tilton School, Haverhill	–	—	94	May
	JOSEPH BRECK & SONS, Boston, Mass.				
42	White Portugal, No. B221	–	—	89	May
500	Yellow Globe Danvers ..... J. E. Jordon Co., Plymouth	–	—	95	May
	W. ATLEE BURPEE CO., Philadelphia, Pa.				
897	Yellow Globe Danvers ..... Parker's Farm Supply Co., Danvers	–	—	64†	July
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
270	Yellow Globe Danvers ..... A. E. Wordell, New Bedford	–	—	70(c)	June
513	Southport White Globe ..... Ricard Grain Co., New Bedford	–	—	49†(c)	May

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1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1941
	ONIONS—Continued				
	CROSMAN SEED CORP., East Rochester, N. Y.				
1118	Yellow Globe Danvers Perron & Co., Southbridge	70	Tested and Packed for 1941	75	July
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
6	Early Yellow Globe, No. 11119	75	12/1940	70	May
905	Yellow Globe Danvers No. 22 C 1317 Essex County Cooperative Farming Association, Topsfield	80	12/1939	35‡	July
	THOMAS W. EMERSON CO., Boston, Mass.				
81	Danvers Yellow Globe, No. 364	–	—	78	May
399	Large Red Wethersfield Thompson Hardware Co., Lowell	–	—	6†(c)	June
	FERRY-MORSE SEED CO., Detroit, Mich.				
427	Yellow Globe Danvers Carlisle Hardware Co., Springfield	–	—	77	May
	FREDONIA SEED CO., Fredonia, N. Y.				
370	Yellow Globe Danvers George E. Warren, Hardware, Braintree	–	—	70	May
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
614	Yellow Globe Danvers Dickinson's Central Grocery, Amherst	–	—	88	July
807	Red Wethersfield Carr Hardware Co., Pittsfield	–	—	72	July
	BUDD D. HAWKINS, Reading, Vt.				
299	Yellow Globe Danvers Francis Brothers, Inc., Reading	–	—	75	June
	D. LANDRETH SEED CO., Bristol, Pa.				
681	Yellow Globe Danvers Salem Hardware Co., Salem	78	1/1941	51‡	July
	LITTLE TREE FARMS, Framingham Center, Mass.				
1003	Yellow Globe Danvers	–	—	61†	July
	MICHAEL-LEONARD SEED CO., Chicago, Ill.				
420	Yellow Globe Danvers W. E. Aubuchon Co., Inc., Millbury	–	—	62†	June
	THE PAGE SEED CO., Greene, N. Y.				
228	Yellow Globe Danvers J. H. Fairbanks Co., Bridgewater	60	1940	69	May
	PERRY SEED CO., Boston, Mass.				
22	Early Yellow Globe, No. 4582	–	—	79	May
	JEROME B. RICE SEED CO., Cambridge, N. Y.				
1101	Yellow Globe Danvers Faulkner Hardware Co., Palmer	–	—	2†(c)	July
	ROSS BROS. CO., Worcester, Mass.				
187	Yellow Globe Danvers, No. 375	93	1/1941	93	May
	THORNTON & CROUCH, Lawrence, Mass.				
311	Danvers Yellow Globe	–	—	81	May
	F. H. WOODRUFF & SONS, Milford, Conn.				
444	Southport White Globe Pittsfield Hardware & Plumbing Supply Co., Pittsfield	–	—	87	May

‡ Below Standard and below Guarantee.
† Below Standard.
(c) Wholesaler claims this seed not sold by him, at least not during current year.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1941
	ONIONS—Concluded				
	F. H. WOODRUFF & SONS—Continued				
677	Yellow Globe Danvers B. F. Hill Co., Salem	–	—	90	July
844	White Portugal E. A. Noble & Co., Stockbridge	–	—	5†(c)	July
894	Yellow Globe Danvers Danvers Hardware Co., Danvers	–	—	10†(c)	July
1146	Japanese Yellow H. J. Croteau Hardware Co., Northampton	–	—	31†	July
	S. D. WOODRUFF & SONS, Orange, Conn.				
697	Yellow Globe, No. 2106 Adams Hardware & Paint Co., Lowell	67	12/1940	24‡	July
1031	Yellow Globe Danvers Bengston Hardware Co., Gardner	–	—	70	July
	UNKNOWN				
861	Yellow Globe Danvers Worcester Grain & Coal Co., Worcester	–	—	39†	July
	PARSLEY				
	Standard Germination 60%				
	W. ATLEE BURPEE, Philadelphia, Pa.				
992	Plain or Single Casey's Hardware, Milford	–	—	83	July
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
274	Plain Jerry's Hardware Co., New Bedford	–	—	77	April
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
12	Plain Leaf Italian, No. 23 C 1617	85	12/1940	86	April
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
626	Moss Curled Osborne Hardware Corporation, Holyoke	–	—	71	May
	THE PAGE SEED CO., Greene, N. Y.				
586	Large Hamburg Rooted Globe Hardware Co., Fall River	55	—	58	May
	ROSS BROS. CO., Worcester, Mass.				
878	Moss Curled Spag's Hardware Co., Shrewsbury	–	—	70	July
	F. H. WOODRUFF & SONS, Milford, Conn.				
813	Moss Curled, No. 18036 Peirson Hardware Co., Pittsfield	–	—	91	July
957	Moss Curled Rome Hardware Co., Rockland	–	—	74	July
	PARSNIP				
	Standard Germination 60%				
	GRACE G. ANDERSON CO., INC., Dunkirk, N. Y.				
283	Hollow Crown Tilton School, Haverhill	–	—	64	May
	JOSEPH BRECK & SONS, Boston, Mass.				
43F	Hollow Crown, No. B 267	–	—	66	May

† Below Standard.
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‡ Below Standard and below Guarantee.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1941
	PARSNIP—Concluded				
	W. ATLEE BURPEE CO., Philadelphia, Pa.				
710	Hollow Crown C. B. Coburn Co., Lowell	–	—	84	June
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
269F	Improved Hollow Crown A. E. Wordell, New Bedford	–	—	67	May
	CROSMAN SEED CORPORATION, East Rochester, N. Y.				
447	Improved Hollow Crown Pittsfield Hardware & Plumbing Supply Co., Pittsfield	60	—	63	May
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
253	Improved Hollow Crown, No. 11110 Eastern States Farmers' Exchange, Montello	90	12/1940	84	June
	THOMAS W. EMERSON CO., Boston, Mass.				
82F	Hollow Crown, No. 377	–	—	65	May
1110	Hollow Crown G. C. Winter Co., Southbridge	–	—	1†(c)	July
	FERRY-MORSE SEED CO., Detroit, Mich.				
365	Hollow Crown Duncan Hardware Corp., Melrose	–	—	71	May
422	Hollow Crown Carlisle Hardware Co., Springfield	–	—	61	May
	THOMAS J. GREY CO., Boston, Mass				
62F	Arlington Long Smooth	–	—	80	May
	JOSEPH HARRIS CO., INC., Rochester, N. Y.				
116F	Harris Model, No. 114 Joseph Harris Co., Inc., Cambridge	76	1941	60§	May
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
811	Hollow Crown Carr Hardware Co., Pittsfield	–	—	35†	July
	D. LANDRETH SEED CO., Bristol, Pa.				
679	Hollow Crown Salem Hardware Co., Salem	–	—	51†	June
	PERRY SEED CO., Boston, Mass.				
23F	Hollow Crown, No. 4791	–	—	58†	June
	JEROME B. RICE SEED CO., Cambridge, N. Y.				
462F	Long Smooth White Frank Howard, Inc., Pittsfield	–	—	96	May
	ROSS BROS. CO., Worcester, Mass.				
188F	Hollow Crown, No. 128	94	1/1941	91	May
	F. H. WOODRUFF & SONS, Milford, Conn.				
339	All American, No. 1-187 B Middlesex County Farm Bureau, Lowell	80	12/1939	77	May
541F	Hollow Crown, No. 1-0104 Farm Service Co., Leominster	75	11/1940	25‡	May
	S. D. WOODRUFF & SONS, Orange, Conn.				
357F	Hollow Crown, No. 2067 Monroe's Seed Market, Attleboro	60	12/1940	49‡	May
	WOODWORTH-BRADLEY, INC., Providence, R. I.				
350	Hollow Crown Hammond Hardware Co., Attleboro	–	—	54†	May

† Below Standard.
(c) Wholesaler claims and retailer admits this seed not purchased during current year.
§ Above Standard but below Guarantee.
‡ Below Standard and below Guarantee.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1941
	PEAS				
	Standard Germination 80%				
	W. E. AUBUCHON CO., INC., Fitchburg, Mass.				
1068	American Wonder W. E. Aubuchon Co., Inc., Spencer	–	—	94	June
	JOSEPH BRECK & SONS, Boston, Mass.				
412	Gradus or Prosperity Frank W. Richardson, Waltham	–	—	96	June
856	Alaska or Clipper Keystone Supply Co., Quincy	–	—	94	June
	W. ATLEE BURPEE CO., Philadelphia, Pa.				
708	Gradus C. B. Coburn Co., Lowell	–	—	85	June
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
149	Alaska G. W. Gardiner & Sons, Fall River	–	—	87	June
263	World's Record A. E. Wordell, New Bedford	–	—	92	June
271	Nott's Excelsior Jerry's Hardware Co., New Bedford	–	—	94	June
320	Telephone H. Bruckmann, Lawrence	–	—	91	June
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
257	World Record, No. 310 Eastern States Farmers' Exchange, Montello	90	12/1940	89	June
258	Little Marvel, No. 10818 Eastern States Farmers' Exchange, Montello	90	12/1940	89	June
904	Hundredfold Wrinkled, No. 2211 Essex County Cooperative Farming Association, Topsfield	90	12/1940	97	June
	THOMAS W. EMERSON CO., Boston, Mass.				
83	World's Record, No. 391	–	—	89	June
402	Tall Telephone Thompson Hardware Co., Lowell	–	—	92	June
604	American Wonder Belmont Hardware Co., Springfield	–	—	3†(c)	June
	FERRY-MORSE SEED CO., Detroit, Mich.				
435	Blue Bantam Carlisle Hardware Co., Springfield	–	—	97	June
637	Nott's Excelsior, No. 38788 Reliable Hardware Co., Mattapan	–	—	95	June
	THOMAS J. GREY CO., Boston, Mass.				
63	Gradus	–	—	92	June
	JOSEPH HARRIS CO., INC., Rochester, N. Y.				
117	Dwarf Alderman, No. 930 Joseph Harris Co., Inc., Cambridge	92	1941	86	June
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
233	World's Record Pierce Hardware Co., Taunton	–	—	96	June
501	Tall Telephone Buzzard's Bay Hardware Co., Buzzard's Bay	90	12/1940	97	June

† Below Standard.
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1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1941
	PEAS—Continued				
	CHARLES C. HART SEED CO.—Continued				
516	Nott's Excelsior C. F. Delano, Fairhaven	–	—	89	June
881	Sutton's Excelsior Waite's Hardware Co., Shrewsbury	–	—	86	June
1145	Gradus Federal Supply Co., Northampton	–	—	90	June
	D. LANDRETH SEED CO., Bristol, Pa.				
324	Laxtonian Frank P. Mills, Campello	–	—	88	June
716	Gradus Cover Grain & Feed Co., Lowell	–	—	92	June
	MICHAEL-LEONARD SEED CO., Chicago, Ill.				
695	Gradus or Prosperity Winer Bros., Beverly	–	—	80	June
805	American Wonder Glennon's Hardware, Dalton	–	—	82	June
	NEW ENGLAND TORO CO., West Newton, Mass.				
168	Laxton's Progress	–	—	89	June
	THE PAGE SEED CO., Greene, N. Y.				
951	Gradus Henry L. Sawyer Co., Framingham	–	—	87	June
	PERRY SEED CO., Boston, Mass.				
33	Laxton's Progress, No. 5726	–	—	92	June
	JEROME B. RICE SEED CO., Cambridge, N. Y.				
592	Nott's Excelsior O. C. Alderman, Springfield	–	—	87	June
1099	Sutton's Excelsior Faulkner Hardware Co., Palmer	–	—	91	June
	ROSS BROS. CO., Worcester, Mass.				
194	Early Blue Bantam, No. 20	98	1/1941	97	June
766	Sutton's Excelsior H. B. Langer, Oxford	–	—	87	June
801	Improved Telephone C. O. Carlson, Goshen	–	—	94	June
	THORNTON & CROUCH, Lawrence, Mass.				
308	World's Record	–	—	88	June
	JOHN B. VARICK CO., Manchester, N. H.				
558	World's Record Harlow Bros., Sterling	–	—	82	June
	F. H. WOODRUFF & SONS, Milford, Conn.				
337	Gradus, No. 13915 Middlesex County Farm Bureau, Lowell	88	1/1940	82	June
406	Sutton's Excelsior Adams Hardware & Paint Co., Lowell	–	—	90	June
441	Gradus Pittsfield Hardware & Plumbing Supply Co., Pittsfield	–	—	77†	June
947	Improved Telephone, No. 6-1141 Boston Supply, Inc., Framingham	94	11/1940	86§	June

† Below Standard.
§ Above Standard but below Guarantee.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1941
	PEAS—Concluded				
	S. D. WOODRUFF & SONS, Orange, Conn.				
352	Telephone, No. 2109	Approx. 80	12/1940	86	June
	Monroe's Seed Market, Attleboro				
858	Nott's Excelsior, No. 2198	Approx. 90	—	95–1	June
	Worcester Grain & Coal Co., Worcester				
	WOODWORTH–BRADLEY, INC., Providence, R. I.				
351	Gradus or Prosperity	–	—	94	June
	Hammond Hardware Co., Attleboro				
	PEPPERS				
	Standard Germination 55%				
	JOSEPH BRECK & SONS, Boston, Mass.				
44F	California Wonder, No. B 131	–	—	90	May
520	Large Bell or Bull Nose	–	—	59	May
	Bogle Hill Hardware Co., Fall River				
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
148F	California Wonder	–	—	88	May
	G. W. Gardiner & Sons, Fall River				
925	Hot Bull Nose	–	—	13†(c)	July
	Franklin Hardware Co., North Attleboro				
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
7F	Early Giant, No. 7418	70	12/1940	73	May
	THOMAS W. EMERSON CO., Boston, Mass.				
84F	California Wonder, No. 425	–	—	94	May
	THOMAS J. GREY CO., Boston, Mass.				
64F	California Wonder	–	—	87	May
	JOSEPH HARRIS CO., INC., Rochester, N. Y.				
122F	Harris Wonder, No. 626	88	1941	79§	May
	Joseph Harris Co., Inc., Cambridge				
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
234F	California Wonder	–	—	95	May
	Pierce Hardware Co., Taunton				
1082	Harris Early Giant	–	—	65	July
	J. Russell & Co., Inc., Holyoke				
	HYGRADE SEED CO., INC., Fredonia, N. Y.				
289	California Wonder	–	—	79	May
	Tilton School, Haverhill				
	PERRY SEED CO., Boston, Mass.				
24F	California Wonder, No. 5021	–	—	95	May
	ROSS BROS. CO., Worcester, Mass.				
189F	Large Bell or Bull Nose, No. 253	90	1/1941	94	May
	F. H. WOODRUFF & SONS, Milford, Conn.				
333	California Wonder No. 14646	90	12/1939	88	May
	Middlesex County Farm Bureau, Lowell				
948	World Beater	–	—	75	July
	Boston Supply, Inc., Framingham				

† Below Standard.
(c) Wholesaler claims this seed not sold by him, at least not during the current year.
§ Above Standard but below Guarantee.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1941
	PUMPKIN				
	Standard Germination 75%				
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
1092	Sugar — Field's Hardware Co., Chicopee	–	—	68†(c)	July
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
383	New England Pie, No. 8111 — Eastern States Farmers' Exchange, Waltham	85	2/1941	91	July
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
1087	Small Sugar — J. Russell & Co., Inc., Holyoke	–	—	79	July
	F. H. WOODRUFF & SONS, Milford, Conn.				
542	Sugar, No. 13573 — Farm Service Co., Leominster	–	—	91	July
	RADISH				
	Standard Germination 75%				
	GRACE G. ANDERSON CO., INC., Dunkirk, N. Y.				
282F	Early Scarlet Turnip White Tip — Tilton School, Haverhill	–	—	90	May
	JOSEPH BRECK & SONS, Boston, Mass.				
45F	Scarlet Globe, No. 0355	–	—	90	May
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
154F	Early Scarlet Globe — G. W. Gardiner & Sons, Fall River	–	—	98	May
275	White Tipped Globe — Jerry's Hardware Co., New Bedford	–	—	87	May
689	French Breakfast — Whitcomb-Carter Co., Beverly	–	—	82	June
	CROSMAN SEED CORP., East Rochester, N. Y.				
1119	Early Scarlet Globe — Perron & Co., Southbridge	80	Packed for 1941	86	June
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
8F	Early Scarlet Globe, No. 1010	85	12/1940	86	June
	THOMAS W. EMERSON CO., Boston, Mass.				
85F	Early Scarlet Turnip, No. 457	–	—	96	June
719	French Breakfast — Butman Feed Co., Lynn	–	—	16†(c)	June
1109	White Tip Scarlet Turnip — G. C. Winter Co., Southbridge	–	—	73†(c)	June
	EMPIRE SEED CO., Fredonia, N. Y.				
625	Early Crimson Giant Globe — Woodlawn Supply Co., South Hadley	50	12/1941	50	July
	FERRY-MORSE SEED CO., Detroit, Mich.				
438	Early Scarlet Turnip White Tipped — Carlisle Hardware Co., Springfield	–	—	81	May
1089	Early Scarlet Globe Med Top — La Fleurs, Hardware & Paint, Chicopee	–	—	97	June
	FREDONIA SEED CO., Fredonia, N. Y.				
1106	Early Long Scarlet Short Top — Parker's Store, Fiskdale	–	—	87	June

† Below Standard.
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1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1941
	RADISH—Concluded				
	FREDONIA SEED CO.—Continued				
1160	French Breakfast J. H. Morrissey, South Deerfield	–	—	78	June
	THOMAS J. GREY CO., Boston, Mass.				
65	Early Scarlet Globe	–	—	98	May
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
508	Early Scarlet Globe Allen Hersom Co., Bedford	96	1/1941	97	May
952	Scarlet Globe White Tip Henry L. Sawyer Co., Framingham	–	—	76	June
1143	French Breakfast Federal Supply Co., Northampton	–	—	82	June
	HYGRADE SEED CO., INC., Fredonia, N. Y.				
126F	Early Scarlet White Tip Spencer Borden School, Fall River	–	—	96	June
	MICHAEL-LEONARD SEED CO., Chicago, Ill.				
553F	White Tip Scarlet Turnip W. E. Aubuchon Co., Inc., Leominster	–	—	63†	May
988	Early Scarlet Turnip L. N. Jacques & Sons, Inc., Milford	–	—	88	June
	PERRY SEED CO., Boston, Mass.				
25F	Early Scarlet Globe, No. 5822	–	—	91	May
	JEROME B. RICE SEED CO., Cambridge, N. Y.				
507	Early Scarlet Turnip Shurtleff Hardware Co., Middleboro	75	1/1941	92	May
594	French Breakfast O. C. Alderman, Springfield	–	—	77	May
	ROSS BROS. CO., Worcester, Mass.				
190F	Scarlet Globe, No. 400	98	1/1941	97	May
662	Early Round Scarlet White Tip A. I. Task Co., Brockton	–	—	96	June
1015	Early Scarlet Turnip City Grain Co., Marlboro	–	—	71†	June
	F. H. WOODRUFF & SONS, Milford, Conn.				
540F	Scarlet Globe, No. 14534 Farm Service Co., Leominster	Approx. 87	11/1940	83	May
732	Sparkler A. P. Marcorelle Co., Inc., Ipswich	–	—	92	June
776	French Breakfast Kindler's Hardware Co., Webster	–	—	71†(c)	June
	RUTABAGA				
	Standard Germination 75%				
	JOSEPH BRECK & SONS, Boston, Mass.				
52F	American Improved Purple Top, No. B-244	–	—	95	July
	BROWNELL HARDWARE CO., Attleboro, Mass.				
343	Large White French or Rock	–	—	65†	July

† Below Standard.
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1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1941
	RUTABAGA—Concluded				
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
152F	Macomber G. W. Gardiner & Sons, Fall River	85	12/1940	74–10‡	9/1941
666	Purple Top W. C. Fuller Co., Mansfield	–	—	90	July
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
254F	Macomber, White Cap, No. 10811 Eastern States Farmers' Exchange, Montello	90	12/1940	96	July
379	Macomber, No. 10811 Eastern States Farmers' Exchange, Waltham	95	12/1940	96	July
	THOMAS W. EMERSON CO., Boston, Mass.				
86F	American Purple Top, No. 577	–	—	45†	July
717	Swede Shamrock Butman Feed Co., Lynn	–	—	0†(c)	July
727	Purple Top John W. Goodhue Corporation, Ipswich	–	—	80	July
	THOMAS J. GREY CO., Boston, Mass.				
66F	Improved American Purple Top	–	—	86	July
	BUDD D. HAWKINS, Reading, Vt.				
885	New White Sweet German Northboro Hardware Co., Northboro	–	—	38†	July
	PERRY SEED CO., Boston, Mass.				
30F	Improved American Purple Top, No. 7133	–	—	46†	July
	F. H. WOODRUFF & SONS, Milford, Conn.				
676	American Purple Top B. F. Hill Co., Salem	–	—	89	July
	SALSIFY				
	Standard Germination 75%				
	THE PAGE SEED CO., Greene, N. Y.	Approx.			
803	Mammoth Sandwich Island C. O. Carlson, Goshen	85	1940	98	July
	SPINACH				
	Standard Germination: Common 60%				
	ASSOCIATED SEED GROWERS, INC., New Haven, Conn.				
142F	Bloomsdale Savoy Long Standing, No. 98624 W. G. Pearse & Co., Fall River	75	10/1940	70	April
	JOSEPH BRECK & SONS, Boston, Mass.				
46F	Viking, No. 0450	–	—	88	April
	W. ATLEE BURPEE CO., Philadelphia, Pa.				
845	Noble Giant E. A. Noble & Co., Stockbridge	–	—	76	June
882	Bloomsdale Northboro Hardware Co., Northboro	–	—	80	June
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
268F	King of Denmark A. E. Wordell, New Bedford	–	—	87	April

‡ Below Standard and below Guarantee.
† Below Standard.
(c) Wholesaler claims this seed not purchased from him, at least not during current year.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Date	Germination Found %	Month of Test 1941
	SPINACH—Concluded				
	COMSTOCK, FERRE & CO.—Continued				
687	Giant Thick Leaf ..... Whitcomb-Carter Co., Beverly	–	—	71	May
	THOMAS W. EMERSON CO., Boston, Mass.				
87F	Rough Thick Leaf, No. 478	–	—	83	April
728	Long Standing ..... John W. Goodhue Corporation, Ipswich	–	—	75	May
1034	Savoy ..... Arlington Hardware Co., Inc., Arlington	–	—	73	June
	EMPIRE SEED CO., Fredonia, N. Y.				
303	Large Bloomsdale-Savoy leaved ..... Loring Cash Market, Lawrence	–	—	67	April
	FERRY-MORSE SEED CO., Detroit, Mich.				
429F	Giant Thick Leaved ..... Carlisle Hardware Co., Springfield	–	—	74	April
	THOMAS J. GREY CO., Boston, Mass.				
67F	King of Denmark	–	—	89	April
	JOSEPH HARRIS CO., INC., Rochester, N. Y.				
119F	Long Standing Bloomsdale, No. 183 ..... Joseph Harris Co., Inc., Cambridge	92	1941	86	May
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
509	Bloomsdale Blight Resistant ..... Allen Hersom Co., New Bedford	87	1/1941	82	June
	D. LANDRETH SEED CO., Bristol, Pa.				
329F	Bloomsdale Reselected ..... Frank P Mills, Campello	–	—	71	April
	THE PAGE SEED CO., Greene, N. Y.				
226F	Thick Leaf V-11-7838 ..... J. H. Fairbanks Co., Bridgewater	75	1/1941	90	April
	PERRY SEED CO., Boston, Mass.				
26F	King of Denmark, No. 6104	–	—	73	April
	ROSS BROS. CO., Worcester, Mass.				
193F	Virginia Savoy, No 246	94	2/1941	94	April
866	Bloomsdale Long Standing ..... Worcester Grain & Coal Co., Worcester	–	—	86	June
	THORNTON & CROUCH, Lawrence, Mass.				
312F	Bloomsdale Long Standing Savoy	–	—	68	April
	F. H. WOODRUFF & SONS, Milford, Conn.				
675	Bloomsdale Long Standing Savoy ..... B. F. Hill Co., Salem	–	—	79	May
841	Long Standing, No. 14590 ..... Platt & Goslee, Great Barrington	Approx. 53	10/1940	44(k)	July
	S. D. WOODRUFF & SONS, Orange, Conn.				
702	Savoy ..... Adams Hardware & Paint Co., Lowell	–	—	90	May
	SQUASH				
	Standard Germination 75%				
	JOSEPH BRECK & SONS, Boston, Mass.				
47F	Warren Turban, No. B 250	–	—	91	July

(k) Equal to Guarantee, allowing tolerance, but below Standard.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1941
	SQUASH—Continued				
	JOSEPH BRECK & SONS—Continued				
963	Giant Summer Crookneck Hall & Torrey, Rockland	–	—	83	July
	W. ATLEE BURPEE CO., Philadelphia, Pa.				
898	Summer Crookneck Parker Farm Supply Co., Danvers	–	—	77	July
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
155F	Blue Hubbard G. W. Gardiner & Sons, Fall River	–	—	98	July
347	Golden Summer Crookneck Wm. F. Flynn & Son, Attleboro	–	—	98	July
667	Summer Crookneck W. C. Fuller Co., Mansfield	–	—	90	July
690	Warren Whitcomb-Carter Co., Beverly	–	—	95	July
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
256F	Conn. Straight Neck, No. 14918 Eastern States Farmers' Exchange, Montello	90	12/1940	92	July
908	Warren's Essex, No. 14918 Essex County Cooperative Farming Association, Topsfield	85	12/1938	84	July
	THOMAS W. EMERSON CO., Boston, Mass.				
88F	Warren Essex, No. 517	–	—	93	July
1108	Summer Crookneck G. C. Winter, Hardware, Southbridge	–	—	46†(c)	July
	FERRY-MORSE SEED CO., Detroit, Mich.				
432F	Giant Straight Neck Carlisle Hardware Co., Springfield	–	—	92	July
	THOMAS J. GREY CO., Boston, Mass.				
68F	Blue Hubbard	–	—	93	July
	JOSEPH HARRIS CO., INC., Rochester, N. Y.				
121F	Warren, No. 675 Joseph Harris Co., Inc., Cambridge	96	1941	92	July
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
617	Table Queen Acorn Dickinson's Central Grocery, Amherst	–	—	91	July
1158	Green Hubbard Sears, Plumbing & Heating Co., South Deerfield	–	—	72†	July
	MICHAEL-LEONARD SEED CO., Chicago, Ill.				
987	Giant Summer Crookneck L. N. Jacques & Sons, Inc., Milford	–	—	99	July
	PERRY SEED CO., Boston, Mass.				
27F	Warted Hubbard, No. 6398	–	—	69†	July
	JEROME B. RICE SEED CO., Cambridge, N. Y.				
464F	Giant Summer Crookneck Frank Howard, Inc., Pittsfield	–	—	90	July
	ROSS BROS. CO., Worcester, Mass.				
191F	Early Summer Crookneck, No. 332	92	1/1941	93	July
1061	Table Queen or Des Moines P. A. Richard Hardware Co., Spencer	–	—	98	July

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1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Date	Germination Found %	Month of Test 1941
	SQUASH—Concluded				
	F. H. WOODRUFF & SONS, Milford, Conn.				
498	Early Summer Crookneck Kingston Hardware Co., Kingston	–	—	85	July
960	Early Summer Crookneck Rome Hardware Co., Rockland	–	—	85	July
1147	Conn. Straight Neck H. J. Croteau Hardware Co., Northampton	–	—	94	July
	S. D. WOODRUFF & SONS, Orange, Conn.				
360F	Straight Neck, No. 2056 Monroe's Seed Market, Attleboro	Approx. 79	12/1940	96	July
	SWISS CHARD				
	Standard Germination 65%				
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
272	Giant Lucullus Jerry's Hardware Co., New Bedford	–	—	70	June
576	Silver C. S. Sawyer & Co., Fall River	–	—	65	May
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
382	Lucullus, No. 1019 Eastern States Farmers' Exchange, Waltham	75	12/1940	69	June
	THOMAS W. EMERSON CO., Boston, Mass.				
982	Lucullus Franklin Hardware & Plumbing Supply Co., Franklin	–	—	83	July
1000	Dark Green Swartz Hardware Co., Newton	–	—	0†(c)	July
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
627	Dark Green Osborne Hardware Corp., Holyoke	–	—	83	June
	D. LANDRETH SEED CO., Bristol, Pa.				
683	Lucullus Salem Hardware Co., Salem	–	—	96	June
	MICHAEL-LEONARD SEED CO., Chicago, Ill.				
554	Silver W. E. Aubuchon Co., Inc., Leominster	–	—	58†	August
	THE PAGE SEED CO., Greene, N. Y.				
953	Lucullus D11, No. 4838 Henry L. Sawyer Co., Framingham	Approx. 75	1/1941	78	July
	ROSS BROS. CO., Worcester, Mass.				
877	Lucullus Spag's Hardware Co., Shrewsbury	–	—	82	July
	F. H. WOODRUFF & SONS, Milford, Conn.				
846	Lucullus E. A. Noble & Co., Stockbridge	–	—	87	July
	S. D. WOODRUFF & SONS, Orange, Conn.				
358	Lucullus, No. 1375 R Monroe's Seed Market, Attleboro	Approx. 70	12/1940	90	June

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1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1941
	TOMATO				
	Standard Germination 75%				
	ASSOCIATED SEED GROWERS, INC., New Haven, Conn.				
143F	Bonny Best, No. 38789	89	8/1940	84	May
	W. G. Pearse & Co., Fall River				
	JOSEPH BRECK & SONS, Boston, Mass.				
48F	Marglobe, No. B 143	–	—	89	May
	COBURN SEED & SUPPLY CO., Chelmsford, Mass.				
393	Coburn's Special Bonny Best, No. 2888	–	—	96	May
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
151F	Bonny Best	–	—	94	May
	G. W. Gardiner & Sons, Fall River				
928	Dwarf Champion	–	—	64†	July
	Franklin Hardware Co., North Attleboro				
1091	New Stone	–	—	92	July
	Field's Hardware Co., Chicopee				
	CROSMAN SEED CORPORATION, East Rochester, N. Y.				
1120	Clark's Early Jewel	–	—	86	July
	Perron & Co., Southbridge				
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
9F	Marglobe, No. 34C–12016	85	12/1940	91	May
380	Comet, No. 34G–18427	85	12/1940	91	May
	Eastern States Farmers' Exchange, Waltham				
	THOMAS W. EMERSON CO., Boston, Mass.				
89F	Bonny Best, No. 542	–	—	87	May
	FERRY-MORSE SEED CO., Detroit, Mich.				
428	Marglobe	–	—	83	May
	Carlisle Hardware Co., Springfield				
573	Dwarf Champion	–	—	76	May
	Copeland Hardware Co., Taunton				
	FRASER'S, Wellesley, Mass.				
174F	Special Earliana	Approx. 85	1941	79	June
	FREDONIA SEED CO., Fredonia, N. Y.				
581	Ponderosa	–	—	85	May
	C. S. Sawyer & Co., Fall River				
	THOMAS J. GREY CO., Boston, Mass.				
69F	John Baer	–	—	91	May
	JOSEPH HARRIS CO., INC., Rochester, N. Y.				
118F	Victor, No. 8511	92	1941	93	May
	Joseph Harris Co., Inc., Cambridge				
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
243F	Marglobe	–	—	93	May
	Pierce Hardware Co., Taunton				
1083	John Baer	–	—	82	July
	J. Russell & Co., Inc., Holyoke				
1141	Bonny Best	–	—	84	July
	Federal Supply Co., Northampton				
	HYGRADE SEED CO., INC., Fredonia, N. Y.				
290	Marglobe	–	—	94	May
	Tilton School, Haverhill				

† Below Standard.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Continued

VEGETABLES—Continued

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1941
	TOMATO—Concluded				
	D. LANDRETH SEED CO., Bristol, Pa.				
330	Marglobe Frank P. Mills, Campello	–	—	89	May
	MICHAEL-LEONARD SEED CO., Chicago, Ill.				
692	John Baer Winer Bros., Beverly	–	—	97	July
	NEW ENGLAND TORO CO., West Newton, Mass.				
156F	Ponderosa	–	—	93	May
	PERRY SEED CO., Boston, Mass.				
28F	Bonny Best, No. 6916	–	—	95	May
	JEROME B. RICE SEED CO., Cambridge, N. Y.				
1105	Pritchard Faulkner Hardware Co., Palmer	–	—	82	July
	ROSS BROS. CO., Worcester, Mass.				
192F	Bonny Best, No. 260	94	1/1941	95	May
	STERLING SEED CO., Minneapolis, Minn.				
835	Spark's Earliana McLellan Stores, Great Barrington	–	—	78	July
	THORNTON & CROUCH, Lawrence, Mass.				
316	Marglobe	–	—	90	May
	F. H. WOODRUFF & SONS, Milford, Conn.				
334	Marglobe, No. 14713 Middlesex County Farm Bureau, Lowell	93	1/1940	95	May
404	John Baer, No. 2307-R Adams Hardware & Paint Co., Lowell	Approx. 75	12/1940	76	May
442	Bonny Best Pittsfield Hardware & Plumbing Supply Co., Pittsfield	–	—	95	May
949	Bonny Best, No. 18030 Boston Supply, Inc., Framingham	Approx. 87	11/1940	91	July
	S. D. WOODRUFF & SONS, Orange, Conn.				
892	Bonny Best, No. 3072 Danvers Hardware Co., Danvers	78	12/1938	66‡	July
	TURNIP				
	Standard Germination 80%				
	ASSOCIATED SEED GROWERS, INC., New Haven, Conn.				
144F	White Egg, No. 39297 W. G. Pearse & Co., Fall River	90	10/1940	93	July
	JOSEPH BRECK & SONS, Boston, Mass.				
49F	White Egg, No. B-247	–	—	97	July
	W. ATLEE BURPEE CO., Philadelphia, Pa.				
883	Purple Top White Globe Northboro Hardware Co., Northboro	–	—	98	July
	COMSTOCK, FERRE & CO., Wethersfield, Conn.				
346	Yellow Globe Wm. F. Flynn & Son, Attleboro	–	—	85	July
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
255F	Purple Top White Milan, No. 5118 Eastern States Farmers' Exchange, Montello	90	12/1940	90	July

‡ Below Standard and below Guarantee.

1941 OFFICIAL INSPECTION OF AGRICULTURAL SEEDS—Concluded

VEGETABLES—Concluded

Lab. No.	Wholesale Distributor, Kind of Seed and Variety, Dealer When Other Than Wholesale Distributor, and Place Collected	Wholesaler's Germination %	Wholesaler's Germination Date	Germination Found %	Month of Test 1941
	TURNIP—Concluded				
	THOMAS W. EMERSON CO., Boston, Mass.				
90F	Purple Top Flat Strap Leaf, No. 562	–	—	94	July
1001	Silver Top Swartz Hardware Co., Newton	–	—	0†(c)	July
	FERRY-MORSE SEED CO., Detroit, Mich.				
437	Yellow Globe Carlisle Hardware Co., Springfield	–	—	66†	July
	FRASER'S, Wellesley, Mass.				
172F	Early Purple Top Strap Leaf	Approx. 90	1/1941	89–2	July
	FREDONIA SEED CO., Fredonia, N. Y.				
1107	Purple Top White Globe Parker's Store, Fiskdale	–	—	80	July
	THOMAS J. GREY CO., Boston, Mass.				
70F	White Egg	–	—	95	July
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
1086	Yellow Globe J. Russell & Co., Inc., Holyoke	–	—	91	July
	NEW ENGLAND TORO CO., West Newton, Mass.				
157F	Purple Top Strap Leaf	–	—	91	July
	PERRY SEED CO., Boston, Mass.				
29F	Purple Top White Globe	–	—	91	July
	JEROME B. RICE SEED CO., Cambridge, N. Y.				
1102	Yellow Globe Faulkner Hardware Co., Palmer	–	—	0†(c)	July
	ROSS BROS. CO., Worcester, Mass.				
1016	Purple Top Strap Leaf City Grain Co., Marlboro	–	—	86	July
	F. H. WOODRUFF & SONS, Milford, Conn.				
531	Red Top White Globe, No. 129972 Middlesex County Farm Bureau, Waltham	90	11/1940	94	July
	WATERMELON				
	Standard Germination 70%				
	EASTERN STATES FARMERS' EXCHANGE, Springfield, Mass.				
381	Cole's Early, No. 611 Eastern States Farmers' Exchange, Waltham	80	12/1940	80	July
	CHARLES C. HART SEED CO., Wethersfield, Conn.				
1085	Kleckley Sweet J. Russell & Co., Inc., Holyoke	86	12/1940	95	July

† Below Standard
(c) Wholesaler claims this seed not sold by him, at least not during current year.

TYPE AND VARIETY STUDIES OF VEGETABLES

Conducted in Conjunction with the Department of Olericulture,

Grant B. Snyder, Professor

Tests have been conducted by the Massachusetts Agricultural Experiment Station for the past six years to acquaint vegetable growers with the relative merits of different commercial strains of certain vegetable varieties and to inform seed distributors of the adaptability of their varieties and strains to climatic and soil conditions similar to those prevailing at Amherst.

During the 1941 season 220 lots were planted in the trials, including beans, beets, broccoli, cabbage, carrots, cauliflower, corn, cucumbers, lettuce, parsnips, peppers, radish, rutabagas, spinach, squash, tomato, and turnip.

The soil of the trial plot was a fine, sandy loam and is naturally fertile. A rye cover crop was plowed under, a liberal quantity of fertilizer was applied, and the soil was thoroughly prepared prior to seedage and plant setting. Growth and development was generally satisfactory although it was necessary to replant several of the kinds due to a poor stand of plants caused by a hard crust of soil which had baked over the germinating seedlings.

Yields of the various crops were not measured because of the necessity of using small plots and also because replication of the plantings was not feasible due to the large number of strains and varieties that were compared. Conformity to type has been the measure of general excellence in these studies. "Type" in plants deals with many characteristics such as shape of the marketable part of the plant; relative smoothness, tallness, or dwarfness; different colors of flowers, fruits, or seeds; disease resistance or susceptibility; and many other well defined differences.

Individual plants have been called "off-type" when they could not be classified in a group of plants ranging fairly close to the average for the particular strain or variety under consideration. The results reported below, however, should be interpreted with certain reservations because of the fact that all strains and varieties are not affected alike by various climatic and soil conditions. It is a noteworthy fact that there were about the same number and degree of off-type plants as in the tests for 1940.

All the samples tested in the field trial plots were taken by an inspector employed by the Massachusetts State Department of Agriculture from lots of seed offered for sale in Massachusetts by various wholesale and retail merchants. The source of the seed and the laboratory germination records are to be found in the tables on pages 39–74, where the lots of seed used in the field tests are identified by the letter "F" added to the laboratory number. Those seeds tested in the field and not included in the following table were found 100% true to type.

FIELD TESTS OF VEGETABLE SEEDS

Lab. No.	Kind of Seed and Variety	True to Type Percent	Remarks
	BEANS		
146 F	Long Yellow Six Weeks	—	Not Yellow — more typical of Bountiful
	BEETS		
36 F	Early Wonder, B 188	94	6% flat
181 F	Early Wonder, No. 125	94	6% flat
264 F	Early Wonder	96	2% very flat — 2% long top-shaped
309 F	Early Wonder	96	2% flat — 2% top shaped
325 F	Early Wonder	92	6% flat — 2% long top-shaped
552 F	Early Egyptian	96	2% top-shaped — 2% blocky
390 F	Early Wonder, No. 3100	92	8% flat
147 F	Boston Crosby	96	2% flat — 2% blocky
169 F	Boston Crosby	94	6% flat
16 F	Crosby's Egyptian, No. 1143	94	4% flat — 2% blocky
54 F	Crosby's Egyptian	98	2% flat
72 F	Crosby's Egyptian, No. 47	98	2% blocky
159 F	Crosby's Egyptian	98	2% flat
414 F	Crosby's Egyptian	98	2% real flat
114 F	Detroit Dark Red, No. 435	94	6% spindle-shaped
127 F	Detroit Dark Red	98	2% flat
136 F	Detroit Dark Red, No. 20805	96	4% spindle-shaped
300 F	Detroit Dark Red	96	4% long
361 F	Detroit Dark Red, No. 2179	94	6% flat
417 F	Detroit Dark Red	94	2% flat — 2% spindle-shaped — 2% long
459 F	Detroit Dark Red	98	2% long
528 F	Detroit Dark Red	94	4% spindle-shaped — 2% light colored
	CARROTS		
58 F	Chantenay	90	10% long tapered
128 F	Chantenay, Long Type	88	12% long tapered
160 F	Chantenay	90	10% long top-shaped
170 F	Chantenay	92	8% long top-shaped
298 F	Chantenay, Red Cored	96	4% long top-shaped
349 F	Chantenay	96	4% long top-shaped
418 F	Chantenay	88	12% long top-shaped
549 F	Chantenay	72	28% very long — like Long Orange
237 F	Danvers Half Long	80	20% very stump-rooted
310 F	Danvers Half Long	76	24% very stump-rooted — Good Chantenay
340 F	Danvers Half Long, No. 17386	96	4% very stump-rooted
355 F	Danvers Half Long, No. 2178	96	4% very stump-rooted
426 F	Danvers Half Long	92	8% very stump-rooted
461 F	Danvers Long Pointed	96	2% white — 2% very yellow
39 F	Hutchinson, No. B 202	98	2% cylindrical
266 F	Hutchinson	94	6% stump-rooted
326 F	Hutchinson	92	8% very stump-rooted
391 F	Hutchinson, No. 3171	96	4% very stump-rooted
77 F	Imperator, No 141	80	20% very stump-rooted
153 F	Oxheart	98	2% very light colored
	LETTUCE		
161 F	Big Boston	90	5% very light colored — 5% non-heading
186 F	N. Y. #12, No. 132	95	5% off-type — very heavy and dark green leaf — seeds early

FIELD TESTS OF VEGETABLE SEEDS—Concluded

Lab. No.	Kind of Seed and Variety	True to Type Percent	Remarks
	RADISH		
8 F	Early Scarlet Globe, No. 1010	84	10% long tapering — 6% spindle-shaped — generally poor color
25 F	Early Scarlet Globe, No. 5822	88	2% off color — 6% long tapering — 4% spindle-shaped
154 F	Early Scarlet Globe	88	6% spindle-shaped — 6% long tapering
85 F	Early Scarlet Turnip, No. 457	92	8% long tapering
282 F	Early Scarlet Turnip White Tip	84	8% spindle-shaped — 8% long tapering
126 F	Early Scarlet White Tip	92	4% white roots — 4% long tapering
45 F	Scarlet Globe, No. 0355	96	4% long tapering
190 F	Scarlet Globe, No. 400	94	2% long bottle neck — 4% long spindle-shaped
540 F	Scarlet Globe, No. 14534	88	12% long spindle-shaped
553 F	White Tip Scarlet Turnip	94	2% white root — 2% long spindle-shaped — 2% long top-shaped
	TURNIP		
29 F	Purple Top White Globe	92	8% long tapering—quite variable
157 F	Purple Top Strap Leaf	97	3% long tapering
49 F	White Egg, No. B 247	92	8% very long and tapering
70 F	White Egg	96	4% very long and tapering
144 F	White Egg, No. 39297	94	6% very long and tapering

STUDIES OF FLOWER SEEDS

Conducted by the Department of Floriculture

Clark L. Thayer, Professor

For the sixth season the Department of Floriculture has cooperated with the Seed Laboratory in maintaining trials to determine the quality of flower seed sold in retail seed stores, hardware stores, chain stores, schools, and other retail outlets. The seeds, which were collected by the State Seed Inspector, were tested by germination and performance under field conditions.

Seeds of 209 lots, representing 49 genera, packeted by 32 concerns and obtained from 78 retail outlets, were distributed as follows:

Ageratum	6	Larkspur (Delphinium)	6
Alonsoa	1	Lupinus (Lupine)	3
Allysum	5	Marigold (Tagetes)	13
Anagallis (Pimpernel)	2	Matthiola bicornis (Evening Scented Stock)	1
Antirrhinum (Snapdragon)	8	Mignonette (Reseda)	5
Aster (Callistephus)	7	Moonflower (Ipomoea)	2
Bachelor Button (Centaurea)	6	Morning Glory (Ipomoea)	8
Balsam (Impatiens)	2	Nasturtium (Tropaeolum)	11
Blue Lace Flower (Didiscus)	2	Nicotiana	2
Calendula	7	Nigella	3
California Poppy (Eschscholtzia)	3	Petunia	9
Candytuft (Iberis)	5	Phlox	3
Chrysanthemum	3	Poppy (Papaver)	4
Cockscomb (Celosia)	2	Portulaca	5
Cosmos	5	Rudbeckia (Coneflower)	1
Daisy, African (Dimorphotheca)	2	Salpiglossis	2
Daisy, Dahlborg (Gamolepis)	1	Salvia	4
Dianthus	5	Sanvitalia	1
Diascia	1	Scabiosa	5
Euphorbia (Snow on-the-Mountain)	1	Stock (Matthiola)	4
Four-O'Clock (Mirabilis)	2	Sunflower (Helianthus)	3
Gaillardia	3	Verbena	4
Gilia	3	Wallflower (Cheiranthus)	1
Godetia	1	Zinnia	13
Gypsophila (Baby's Breath)	5		
Helichrysum (Strawflower)	4	TOTAL	209
Kochia (Mexican Fire Bush)	4		

No germination tests were made in the laboratory on any of the lots of seed, since many of the packets contained too small a quantity of seed for both field and laboratory tests. Remarks on germination observed in the field are comparative and are not rated on a percentage basis.

When the number of seeds permitted, rows fifteen feet long were sown. Germination was rated as "good" if the seeds germinated in approximately two-thirds of the row; "fair" between one-third and two-thirds; "poor" for one-third or less. Performance was designated as "satisfactory" if the varieties were true to name, producing only a low percentage of plants which were not true to form or color (one-third or less); "fair" between one-third and two-thirds not true; and "not satisfactory" if less than one-third was true to name or did not produce satisfactory plants for providing sufficient data.

As far as possible trueness-to-type was determined, but since many lots were described as mixtures or did not carry varietal names, a wide range in color and form was permissible.

The seeds were sown between June 13 and 24, the delay being caused by weather conditions which made it impossible to get the seeds into the ground in a shorter period. The first killing frost occurred on September 30 but many of the hardy annuals were not seriously injured by frost until October 26. Total rainfall for the months of June, July, August, and September in 1941 was 14.84 inches as compared with 10.24 inches in 1940, 12.73 inches in 1939, and 32.49 inches in 1938. The normal rainfall for this period of four months is 16.19 inches.[1]

FLOWER SEED INSPECTION

Lab. No.	Kind and Variety of Seed, Wholesale Distributor, Dealer When Other Than Wholesale Distributor, and Place Collected	Field Tests: Germination	Field Tests: Performance
	AGERATUM		
	THOMAS W. EMERSON CO., Boston, Mass.		
99F	Blue Perfection	Good	Satisfactory
	FREDONIA SEED CO., Fredonia, N. Y.		
371F	Blue George E. Warren, Hardware, Braintree	Fair	Satisfactory
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
889F	Blue Perfection The Welch Co., Scituate	Good	Satisfactory
	NEW ENGLAND TORO CO., West Newton, Mass.		
166F	Blue Perfection	Good	Satisfactory
	STERLING SEED CO., Minneapolis, Minn.		
830F	Dwarf Blue McLellan's Store Co., Great Barrington	Fair	Satisfactory
	THORNTON & CROUCH, Lawrence, Mass.		
313F	Gold Medal	Good	Satisfactory
	ALONSOA—Maskflower		
	JOSEPH BRECK & SONS, Boston, Mass.		
474F	Alonsoa Mutise — Salmon Orange	Poor	Not Satisfactory
	ALYSSUM		
	EMPIRE SEED CO., Fredonia, N. Y.		
1097F	Gold Dust Fenton's Flower Shop, Holyoke	Good	Not satisfactory — about 25% Sweet Alyssum
	MANDEVILLE, KING & CO., Rochester, N. Y.		
754F	Snow Cloth Frank Harkins, East Milton	Good	Satisfactory
	THE PAGE SEED CO., Greene, N. Y.		
229F	Sweet J. H. Fairbanks Co., Bridgewater	Poor	Not Satisfactory
	PERRY SEED CO., Boston, Mass.		
735F	Carpet of Snow	Good	Satisfactory
	J. B. RICE, JR., INC., Shushan, N. Y.		
1048F	Little Gem Fred F. Smith, Inc., Reading	Good	Satisfactory
	ANAGALLIS		
	JOSEPH BRECK & SONS, Boston, Mass.		
484F	Anagallis-Pimpernel, Gentian Blue	Good	Satisfactory
	MANDEVILLE, KING & CO., Rochester, N. Y.		
936F	Anagallis, Scarlet and other colors Vanderhoof Hardware Co., Concord	Good	Satisfactory

[1]Data on precipitation and frosts were taken from the monthly bulletins, "Meteorological Observations," of the Massachusetts Agricultural Experiment Station.

FLOWER SEED INSPECTION — Continued

Lab. No.	Kind and Variety of Seed, Wholesale Distributor, Dealer When Other Than Wholesale Distributor, and Place Collected	Field Tests: Germination	Field Tests: Performance
	ANTIRRHINUM — Snapdragon		
	GRACE G. ANDERSON CO., INC., Dunkirk, N. Y.		
286F	Choice Colors Tilton School, Haverhill	Fair	Satisfactory 7 colors
	FREDONIA SEED CO., Fredonia, N. Y.		
767F	Finest Mixed Langer Hardware Co., Oxford	Fair	Satisfactory 4 colors
	THOMAS J. GREY CO., Boston, Mass.		
488F	Rust Resistant—Maximum Mixed	Good	Satisfactory
	LITTLE TREE FARMS, Framingham Center, Mass.		
1005F	Canary Bird	Fair	Satisfactory
	NORTHRUP, KING & CO., Minneapolis, Minn.		
748F	All Colors Mixed F. W. Woolworth Co., Wollaston	Good	Satisfactory 10 colors
	PERRY SEED CO., Boston, Mass.		
736F	Indian Summer	Fair	Satisfactory
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
818F	Giant Scarlet Frank Howard, Inc., Pittsfield	Good	Satisfactory
	VAUGHAN'S SEED STORE, New York City		
757F	Rustproof — University of California Mixed H. C. Winton, Winchester	Fair	Satisfactory 10 Colors
	ASTER		
	CHASE NURSERY, Winchendon, Mass.		
439F	Wilt Resistant Pierce Hardware Co., Millbury	Good	Satisfactory Single: 7 Colors
	COBURN SEED AND SUPPLY CO., Chelmsford, Mass.		
394F	Giant Branching Mixed	Good	Satisfactory
	FERRY-MORSE SEED CO., Detroit, Mich.		
1033F	Giant Crego White Jewett Hardware Co., Belmont	Good	Had not bloomed October 15
	THOMAS J. GREY CO., Boston, Mass.		
492F	Giant Harmony — Morning Mist	Good	Had not bloomed October 15
493F	Early Giant, Wilt Resistant, Light Blue	Good	Satisfactory
	J. B. RICE, JR., INC., Shushan, N. Y.		
815F	Heart of France Peirson Hardware Co., Pittsfield	Fair	Satisfactory
	ROSS BROS. CO., Worcester, Mass.		
197F	Super Giant Los Angeles	Good	Had not bloomed October 15
	BACHELOR BUTTON		
	THOMAS W. EMERSON CO., Boston, Mass.		
97F	Blue Florist Strain	Fair	Satisfactory
	FRASER'S, Wellesley, Mass.		
934F	Double Blue Select Florist Strain The Pettee Co., Sharon	Good	Not satisfactory 3 colors
	FERRY-MORSE SEED CO., Detroit, Mich.		
1026F	Jubilee Gem Coolidge Paint & Supply Co., Watertown	Poor	Not Satisfactory
	JOSEPH HARRIS CO., Rochester, N. Y.		
124F	Tall Double Blue Joseph Harris Co., Cambridge	Poor	Not Satisfactory
	ROSS BROS. CO., Worcester, Mass.		
195F	Double Blue Boy	Fair	Satisfactory
	VAUGHAN'S SEED STORE, New York City		
1053F	Red, White and Blue Mixed, Super-double A. W. Cogger, Reading	Poor	Not satisfactory

FLOWER SEED INSPECTION — Continued

Lab. No.	Kind and Variety of Seed, Wholesale Distributor, Dealer When Other Than Wholesale Distributor, and Place Collected	Field Tests: Germination	Field Tests: Performance
	BALSAM		
	FREDONIA SEED CO., Fredonia, N. Y.		
770F	Finest Mixed	Fair	Satisfactory
	Langer Hardware Co., Oxford		
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
817F	Bush Double White	Fair	Satisfactory
	Frank Howard, Inc., Pittsfield		
	BLUE LACE FLOWER		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
763F	Didiscus (coeruleus)	Good	Satisfactory
	Central Hardware Co., Winchester		
	NORTHRUP, KING & CO., Minneapolis, Minn.		
750F	Didiscus	Good	Satisfactory
	F. W. Woolworth Co., Wollaston		
	CALENDULA		
	W. ATLEE BURPEE CO., Philadelphia, Pa.		
648F	Yellow Colossal	Fair	Satisfactory
	The Fair, Inc., Roslindale		
	COBURN SEED & SUPPLY CO., Chelmsford, Mass.		
395F	Lemon Queen	Good	Satisfactory
	THOMAS W. EMERSON CO., Boston, Mass.		
103F	Orange Shaggy	Poor	Not satisfactory
	FRASER'S, Wellesley, Mass.		
179F	Orange King	Good	Satisfactory
	JOSEPH HARRIS CO., INC., Rochester, N. Y.		
123F	Lemon Queen	Good	Satisfactory
	Joseph Harris Co., Inc., Cambridge		
	NEW ENGLAND TORO CO., West Newton, Mass.		
165F	Orange King	Good	Satisfactory
	ROSS BROS. CO., Worcester, Mass.		
200F	Chrysantha	Fair	Satisfactory
	CALIFORNIA POPPY		
	JOSEPH BRECK & SONS, Boston, Mass.		
469F	Semi-double Monarch Art Shades	Poor	Not satisfactory
	FERRY-MORSE SEED CO., Detroit, Mich.		
753F	Extra Golden	Good	Satisfactory
	Frank Harkins, East Milton		
	NORTHRUP, KING & CO., Minneapolis, Minn.		
747F	All Colors Mixed	Good	Not satisfactory
	F. W. Woolworth Co., Wollaston		Only 3 colors
	CANDYTUFT		
	BODGER SEED CO., El Monte, California		
923F	White Empress	Fair	Satisfactory
	Monroe Seed Market, Attleboro		
	JOSEPH BRECK & SONS, Boston, Mass.		
472F	Choice Mixture	Good	Satisfactory
473F	Miniature Gem	Fair	Satisfactory
	STERLING SEED CO., Minneapolis, Minn.		
968F	All Colors Mixed	Fair	Satisfactory
	W. T. Grant Co., Rockland		7 colors
	THORNTON & CROUCH, Lawrence, Mass.		
315F	Empress White	Good	Satisfactory

FLOWER SEED INSPECTION — Continued

Lab. No.	Kind and Variety of Seed, Wholesale Distributor, Dealer When Other Than Wholesale Distributor, and Place Collected	Field Tests: Germination	Field Tests: Performance
	CHRYSANTHEMUM		
	JOSEPH BRECK & SONS, Boston, Mass.		
1030F	Annual Single Mixed	Good	Satisfactory
	Winter's Hardware Co., Belmont		
	FERRY-MORSE SEED CO., Detroit, Mich.		
1037F	Single Annual Mixed	Good	Satisfactory
	Ben Franklin Store, Arlington Heights		
	J. B. RICE, JR., INC., Shushan, N. Y.		
1049F	Tricolor Mixed	Fair	Satisfactory
	Fred F. Smith, Inc., Reading		
	COCKSCOMB — Celosia		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
764F	Cristata Tall Mixed	Poor	Not satisfactory
	Central Hardware Co., Winchester		
	PERRY SEED CO., Boston, Mass.		
737F	Celosia plumosa Scarlet	Good	Satisfactory
	COSMOS		
	CROSMAN SEED CORP., East Rochester, N. Y.		
1122F	Early Flowering Mixed	Good	Satisfactory
	Perron & Co., Southbridge		5 colors
	EMPIRE SEED CO., Fredonia, N. Y.		
1093F	Early Mammoth Mixed Colors	Poor	Not Satisfactory
	Fenton's Flower Store, Holyoke		
	FERRY-MORSE SEED CO., Detroit, Mich.		
1036F	Klondyke Orange Flare	Fair	Satisfactory
	Ben Franklin's Store, Arlington Heights		
	HYGRADE SEED CO., Fredonia, N. Y.		
130F	Sensation Mixed Colors	Fair	Satisfactory
	Spencer Borden School, Fall River		
	MANDEVILLE, KING & CO., Rochester, N. Y.		
890F	Sensation Pink and White	Fair	Satisfactory
	The Welch Co., Scituate		
	DAISY — (African)		
	JOSEPH BRECK & SONS, Boston, Mass.		
410F	African	Poor	Not Satisfactory
	Hubert Hardware Co., Newton Highlands		
	FERRY-MORSE SEED CO., Detroit, Mich.		
366F	Dimorphotheca Hybrids	Fair	Satisfactory
	Duncan's Hardware Corp., Melrose		5 colors
	DAISY — (Dahlborg)		
	JOSEPH BRECK & SONS, Boston, Mass.		
471F	Glittering Gold	Poor	Not Satisfactory
	DIANTHUS		
	JOSEPH BRECK & SONS, Boston, Mass.		
470F	Geisha Girl — Single and Double	Good	Satisfactory
			8 colors
	FREDONIA SEED CO., Fredonia, N. Y.		
1024F	Heddewig; Mixed	Fair	Satisfactory
	Town Paint & Supply Co., Natick		10 colors
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
1035F	Finest Mixed	Fair	Satisfactory
	Mills Hardware Co., Arlington		7 colors
	NORTHRUP, KING & CO., Minneapolis, Minn.		
1028F	Double Mixed	Good	Satisfactory
	Dines 5c and 10c Store, Watertown		6 colors

FLOWER SEED INSPECTION — Continued

Lab. No.	Kind and Variety of Seed, Wholesale Distributor, Dealer When Other Than Wholesale Distributor, and Place Collected	Field Tests: Germination	Field Tests: Performance
	DIANTHUS—Concluded		
	ROSS BROS. CO., Worcester, Mass.		
1042F	Choice Mixed	Good	Satisfactory
	Donavan's, Newburyport		
	DIASCIA		
	JOSEPH BRECK & SONS, Boston, Mass.		
483F	Barberae (Coral pink)	Fair	Satisfactory
	EUPHORBIA (Snow-on-the-Mountain)		
	STERLING SEED CO., Minneapolis, Minn.		
967F	Euphorbia	Poor	Not Satisfactory
	W. T. Grant Co., Rockland		
	FOUR O'CLOCK		
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
983F	Marvel of Peru. Finest Mixed	Fair	Satisfactory
	Franklin Hardware & Plumbing Supply Co., Franklin		
1135F	Annual Mixed	Fair	Satisfactory
	Bengston Hardware Co., Gardner		
	GAILLARDIA		
	THOMAS W. EMERSON CO., Boston, Mass.		
96F	Indian Chief	Good	Satisfactory
	MANDEVILLE, KING & CO., Chicago, Ill.		
563F	Indian Chief	Good	Satisfactory
	Pill Hardware & Supply Co., Cambridge		
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
242F	Indian Chief	Good	Satisfactory
	Pierce Hardware Co., Taunton		
	GILIA		
	JOSEPH BRECK & SONS, Boston, Mass.		
475F	Micrantha (Fairy Star)	Poor	Not Satisfactory
	MANDEVILLE, KING & CO., Rochester, N. Y.		
937F	Capitata	Good	Satisfactory
	Vanderhoof Hardware Co., Concord		
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
984F	Capitata	Good	Satisfactory
	Franklin Hardware & Plumbing Supply Co., Franklin		
	GODETIA		
	STERLING SEED CO., Minneapolis, Minn.		
872F	Grandiflora Double Tall Mixed	Fair	Satisfactory 4 colors
	J. J. Newberry, Worcester		
	GYPSOPHILA		
	BODGER SEED CO., El Monte, California		
922F	White	Good	Satisfactory
	Monroe Seed Market, Attleboro		
	JOSEPH BRECK & SONS, Boston, Mass.		
888F	Giant White	Good	Satisfactory
	The Welch Co., Scituate		
	FREDONIA SEED CO., Fredonia, N. Y.		
870F	Large Flowers	Good	Satisfactory
	Sadick Hardware & Paint Co., Worcester		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
965F	White	Good	Satisfactory
	Hall and Torrey, Rockland		

FLOWER SEED INSPECTION — Continued

Lab. No.	Kind and Variety of Seed, Wholesale Distributor, Dealer When Other Than Wholesale Distributor, and Place Collected	Field Tests: Germination	Field Tests: Performance
	GYPSOPHILA—Concluded		
	STERLING SEED CO., Minneapolis, Minn.		
873F	Baby's Breath, Rose J. J. Newberry Co., Worcester	Good	Satisfactory
	HELICHRYSUM — Strawflower		
	JOSEPH BRECK & SONS, Boston, Mass.		
1031F	Choice Mixed Winter Hardware Co., Belmont	Fair	Satisfactory 6 colors
	EMPIRE SEED CO., Fredonia, N. Y.		
1095F	Finest Mixed Colors Fenton's Flower Shop, Holyoke	Poor	Not satisfactory; all plants died
	MANDEVILLE, KING & CO., Rochester, N. Y.		
990	All colors L. N. Jacques & Sons, Inc., Milford	Fair	Satisfactory 4 colors
	STERLING SEED CO., Minneapolis, Minn.		
874F	Monstrosum Mixed J. J. Newberry Co., Worcester	Fair	Satisfactory 8 colors
	KOCHIA — Mexican Fire Bush		
	FERRY-MORSE SEED CO., Detroit, Mich.		
1041F	Childsi Forrest D. Bradshaw, South Sudbury	Fair	Satisfactory
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
762F	Kochia Central Hardware Co., Winchester	Poor	Not satisfactory; all plants died
	J. B. RICE, JR., INC., Shushan, N. Y.		
816F	Mexican Fire Bush Peirson Hardware Co., Pittsfield	Good	Satisfactory
	ROSS BROS. CO., Worcester, Mass.		
1017F	Scoparia City Grain Co., Marlboro	Good	Satisfactory
	LARKSPUR		
	GRACE G. ANDERSON CO., INC., Dunkirk, N. Y.		
285F	Tall Double Stock—Flowering Tilton School, Haverhill	Poor	Not satisfactory
	CROSMAN SEED CORP., East Rochester, N. Y.		
1124F	Annual Mixed Colors Perron & Co., Southbridge	Poor	Not satisfactory
	FERRY-MORSE SEED CO., Detroit, Mich		
1022F	Tall Double Mixed Forrest D. Bradshaw, South Sudbury	Poor	Not satisfactory
	PERRY SEED CO., Boston, Mass.		
738F	Giant Imperial, Gloria Improved	Fair	Satisfactory
	J. B. RICE, JR., INC., Shushan, N. Y.		
814F	Tall Double Mixed Peirson Hardware Co., Pittsfield	Poor	Not satisfactory
	VAUGHAN'S SEED STORE, New York City		
1051F	Double Annual Special Mixture H. W. Cogger, Reading	Poor	Not satisfactory
	LUPINUS — Lupine		
	FREDONIA SEED CO., Fredonia, N. Y.		
768F	Finest Mixed Langer Hardware Co., Oxford	Fair	1 plant in bloom October 15
	PERRY SEED CO., Boston, Mass.		
739F	Hartwegii — New Giant King	Good	Had not bloomed October 15
	STERLING SEED CO., Minneapolis, Minn.		
831F	Blue McLellan's Store, Great Barrington	Poor	Not satisfactory

FLOWER SEED INSPECTION — Continued

Lab. No.	Kind and Variety of Seed, Wholesale Distributor, Dealer When Other Than Wholesale Distributor, and Place Collected	Field Tests: Germination	Field Tests: Performance
	MARIGOLD		
	JOSEPH BRECK & SONS, Boston, Mass.		
476F	Sunburst Orange	Good	Had not bloomed September 30
477F	Primrose Queen	Poor	Not satisfactory
	W. ATLEE BURPEE CO., Philadelphia, Pa.		
649F	Harmony The Fair, Inc., Roslindale	Good	Satisfactory
	THOMAS W. EMERSON CO., Boston, Mass.		
95F	Guinea Gold	Fair	Satisfactory
	EMPIRE SEED CO., Fredonia, N. Y.		
305F	Guinea Gold Loring Cash Market, Lawrence	Good	Satisfactory
	THOMAS J. GREY CO., Boston, Mass.		
486F	Mission Giants Mixed	Fair	1 plant in bloom September 30
490F	Golden West	Good	1 plant in bloom September 30
	HYGRADE SEED CO., Fredonia, N. Y.		
131F	Orbit Spencer Borden School, Fall River	Fair	Satisfactory
	MANDEVILLE, KING & CO., Rochester, N. Y.		
597F	Burpee Gold Lewis Zandell Hardware Co., Springfield	Fair	1 plant in bloom September 30
	NEW ENGLAND TORO CO., West Newton, Mass.		
167F	Yellow Supreme	Good	Satisfactory
	ROSS BROS. CO., Worcester, Mass.		
199F	Harmony	Good	Satisfactory
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
241F	Crown of Gold Pierce Hardware Co., Taunton	Good	Satisfactory
	THORNTON & CROUCH, Lawrence, Mass.		
314F	Guinea Gold	Good	Satisfactory
	MATTHIOLA BICORNIS (Evening Scented Stock)		
	NORTHRUP, KING & CO., Minneapolis, Minn.		
746F	Evening Scented Stock E. W. Woolworth Co., Wollaston	Good	Satisfactory
	MIGNONETTE		
	BODGER SEED CO., El Monte, California		
924F	Mignonette Monroe Seed Market, Attleboro	Good	Satisfactory
	JOSEPH BRECK & SONS, Boston, Mass.		
636F	Mignonette	Good	Satisfactory
	THOMAS W. EMERSON CO., Boston, Mass.		
98F	Machet	Good	Satisfactory
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
840F	Giant Machet Platt & Goslee, Great Barrington	Fair	Satisfactory
	ROSS BROS. CO., Worcester, Mass.		
769F	Sweet Mignonette Langer Hardware Co., Oxford	Good	Satisfactory
	MOONFLOWER		
	FRASER'S, Wellesley, Mass.		
362F	White Annual Melrose Hardware Co., Melrose	Good	Had not bloomed before frost
	VAUGHAN'S SEED STORE, New York City		
759F	Mexicana Grandiflora Alba H. C. Winten, Winchester	Poor	Not satisfactory

FLOWER SEED INSPECTION — Continued

Lab. No.	Kind and Variety of Seed, Wholesale Distributor, Dealer When Other Than Wholesale Distributor, and Place Collected	Field Tests: Germination	Field Tests: Performance
	MORNING GLORY		
	GRACE G. ANDERSON CO., INC., Dunkirk, N. Y.		
288F	Heavenly Blue Tilton School, Haverhill	Good	Satisfactory
	EMPIRE SEED CO., Fredonia, N. Y		
304F	Scarlett O'Hara Loring Cash Market, Lawrence	Good	Satisfactory
	FERRY-MORSE SEED CO., Detroit, Mich.		
244F	Heavenly Blue R. E. Cobb Co., Weymouth	Fair	Satisfactory
	FRASER'S, Wellesley, Mass.		
177F	Heavenly Blue	Good	Satisfactory
	HYGRADE SEED CO., Fredonia, N. Y.		
294F	Heavenly Blue Tilton School, Haverhill	Good	Satisfactory
	MANDEVILLE, KING & CO., Rochester, N. Y.		
964F	Scarlett O'Hara Hall & Torrey, Rockland	Fair	Satisfactory
	NEW ENGLAND TORO CO., West Newton, Mass.		
164F	Heavenly Blue	Good	Satisfactory
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
1077F	Heavenly Blue Sibley Hardware Co., Ware	Good	Satisfactory
	NASTURTIUM		
	GRACE G. ANDERSON CO., INC., Dunkirk, N. Y.		
293F	Golden Gleam Tilton School, Haverhill	Fair	Satisfactory
	JOSEPH BRECK & SONS, Boston, Mass.		
631F	Tall Cohasset Hardware Co., Cohasset	Good	Satisfactory 12 colors
	W. ATLEE BURPEE CO., Philadelphia, Pa.		
995F	Glorious Gleam Hybrids Casey's Hardware Store, Milford	Good	Satisfactory 10 colors
	COMSTOCK, FERRE & CO., Wethersfield, Conn.		
348F	Dwarf Mixed Wm. F. Flynn & Son, Attleboro	Poor	Satisfactory
	THOMAS W. EMERSON CO., Boston, Mass.		
853F	Golden Gleam Walsh & Packard, Inc., Hingham	Good	Satisfactory 30% off color
	FREDONIA SEED CO., Fredonia, N. Y		
583F	Golden Gleam C. S. Sawyer & Co., Fall River	Fair	Satisfactory
	THOMAS J. GREY CO., Boston, Mass.		
494F	Indian Chief	Fair	Satisfactory
	MICHAEL-LEONARD SEED CO., Chicago, Ill.		
556F	Dwarf Mixed W. E. Aubuchon Co., Inc., Leominster	Good	Satisfactory 8 colors
	ROSS BROS. CO., Worcester, Mass.		
661F	Dwarf A. I. Task Co., Brockton	Fair	Satisfactory 10 colors
	F. H. WOODRUFF & SONS, Milford, Conn.		
961F	Golden Gleam Rome Bros., Hardware, Rockland	Good	Satisfactory 20% off color
	S. D. WOODRUFF & SONS, Orange, Conn.		
654F	Dwarf New Style Hardware Co., Roslindale	Poor	Not satisfactory

FLOWER SEED INSPECTION — Continued

Lab. No.	Kind and Variety of Seed, Wholesale Distributor, Dealer When Other Than Wholesale Distributor, and Place Collected	Field Tests: Germination	Field Tests: Performance
	NICOTIANA		
	FERRY-MORSE SEED CO., Detroit, Micu.		
752F	Evening Star Frank Harkins, East Milton	Good	Satisfactory
	J. B. RICE, JR., INC., Shushan, N. Y.		
1047F	Sweet Scented Mixed Fred F. Smith, Inc., Reading	Good	Satisfactory
	NIGELLA		
	EMPIRE SEED CO., Fredonia, N. Y.		
1094F	Love-in-a-Mist Mixed Fenton's Flower Shop, Holyoke	Good	Satisfactory
	LITTLE TREE FARMS, Framingham Center, Mass.		
1007F	Love-in-a-Mist	Good	Satisfactory
	STERLING SEED CO., Minneapolis, Minn.		
966F	Love-in-a-Mist W. T. Grant Co., Rockland	Good	Satisfactory
	PETUNIA		
	JOSEPH BRECK & SONS, Boston, Mass.		
478F	Radiance	Good	Satisfactory
	FRASER'S, Wellesley, Mass.		
178F	Violacea	Good	Satisfactory 5% off color
	THOMAS J. GREY CO., Boston, Mass.		
479F	Hamlet — Dwarf Bedding	Good	Satisfactory 4% off type
489F	Grandiflora — Balcony Maculata	Good	Satisfactory
	HYGRADE SEED CO., Fredonia, N. Y.		
134F	Exquisite Hybrida Spencer Borden School, Fall River	Good	Satisfactory 10 colors
	MANDEVILLE, KING & CO., Rochester, N. Y.		
1019F	Balcony Purple Marlboro General Store, Marlboro	Good	Satisfactory 4% off color
	NORTHRUP, KING & CO., Minneapolis, Minn.		
211F	Hybrida Mixed Colors Revere Hardware Co., Revere	Good	Satisfactory 10 colors
	J. B. RICE, JR., INC., Shushan, N. Y.		
590F	Twinkles A. J. Demarais Hardware, Fall River	Good	Not satisfactory 52% off color
	ROSS BROS. CO., Worcester, Mass.		
201F	Rosy Morn	Good	Satisfactory 6% off color
	PHLOX		
	FREDONIA SEED CO., Fredonia, N Y		
1023F	Finest Mixed Town Paint & Supply Co , Natick	Poor	Not satisfactory
	THOMAS J. GREY CO., Boston, Mass.		
487F	Drummondi, Grandiflora Dwarf Mixed	Good	Satisfactory 6 colors
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
819F	Scarlet Frank Howard, Inc., Pittsfield	Good	Satisfactory
	POPPY		
	GRACE G. ANDERSON CO., INC., Dunkirk, N. Y.		
287F	Shirley, Double Begonia-flowered Tilton School, Haverhill	Good	Satisfactory

FLOWER SEED INSPECTION — Continued

Lab. No.	Kind and Variety of Seed, Wholesale Distributor, Dealer When Other Than Wholesale Distributor, and Place Collected	Field Tests	
		Germination	Performance
	POPPY—Concluded		
	HYGRADE SEED CO., Fredonia, N. Y.		
133F	American Legion Spencer Borden School, Fall River	Good	Satisfactory
	LITTLE TREE FARMS, Framingham Center, Mass.		
1004F	Shirley Single Mixture	Good	Satisfactory 6 colors
	VAUGHAN'S SEED STORE, New York City		
758F	Shirley — American Legion H. C. Winton, Winchester	Good	Satisfactory
	PORTULACA		
	CROSMAN SEED CORP., East Rochester, N. Y.		
1123F	Mixed colors Perron Hardware Co., Southbridge	Good	Satisfactory
	FERRY-MORSE SEED CO., Detroit, Mich		
1020F	Single Mixed Marlboro General Store, Marlboro	Good	Satisfactory
	NORTHRUP, KING & CO., Minneapolis, Minn.		
1029F	Single Mixed Dines 5c and 10c Store, Watertown	Good	Satisfactory
	STERLING SEED CO., Minneapolis, Minn		
829F	Double Mixed McLellan's Store, Great Barrington	Good	Satisfactory
	VAUGHAN'S SEED STORE, New York City		
760F	Double Best Mixed H. C. Winton, Winchester	Good	Satisfactory
	RUDBECKIA (Coneflower)		
	JOSEPH BRECK & SONS, Boston, Mass.		
480F	Coneflower	Good	Satisfactory
	SALPIGLOSSIS		
	HYGRADE SEED CO., Fredonia, N. Y.		
132F	Exquisite Mixed Colors Spencer Borden School, Fall River	Fair	Satisfactory 10 colors
	VAUGHAN'S SEED STORE, New York City		
1055F	Special Mixed H. W. Cogger, Reading	Good	Satisfactory 5 colors
	SALVIA		
	FERRY-MORSE SEED CO., Detroit, Mich.		
765F	Bonfire Winchester Hardware Co., Winchester	Poor	Not satisfactory
	LITTLE TREE FARMS, Framingham Center, Mass.		
1006F	Bonfire	Fair	Satisfactory
	NORTHRUP, KING & CO., Minneapolis, Minn.		
745F	Splendens — Scarlet Sage F. W. Woolworth Co., Wollaston	Fair	Satisfactory
	STERLING SEED CO., Minneapolis, Minn.		
871F	Spendens — Scarlet Sage J. J. Newberry, Worcester	Fair	Satisfactory
	SANVITALIA		
	JOSEPH BRECK & SONS, Boston, Mass.		
481F	Procumbens, var. Fl. Pl.	Fair	Satisfactory

FLOWER SEED INSPECTION — Continued

Lab. No.	Kind and Variety of Seed, Wholesale Distributor, Dealer When Other Than Wholesale Distributor, and Place Collected	Field Tests: Germination	Field Tests: Performance
	SCABIOSA		
	MANDEVILLE, KING & CO., Detroit, Mich.		
657F	Rosette Brockton Hardware & Supply Co., Brockton	Good	Satisfactory
	PERRY SEED CO., Boston, Mass.		
740F	Azure Fairy	Good	Satisfactory
	J. B. RICE, JR., INC., Shushan, N. Y.		
838F	Mixed F. H. Turner & Co., Great Barrington	Good	Satisfactory 5 colors
	ROSS BROS. CO., Worcester, Mass.		
1018F	Mixed colors City Grain Co., Marlboro	Good	Satisfactory 2 colors
	VAUGHAN'S SEED STORE, New York City		
1052F	Special Mixed H. W. Cogger, Reading	Good	Satisfactory 4 colors
	STOCK		
	EMPIRE SEED CO., Fredonia, N. Y.		
1096F	Mixed Colors Fenton's Flower Shop, Holyoke	Poor	Not Satisfactory
	THOMAS J. GREY CO., Boston, Mass.		
491F	Dwarf Large Flowering	Good	Satisfactory
	MANDEVILLE, KING & CO., Rochester, N. Y.		
1032F	Mammoth Ten Weeks Mixed Jewett Hardware Co., Belmont	Fair	Satisfactory
	ROSS BROS. CO., Worcester, Mass.		
1041F	Mixed — Ten Weeks	Good	Satisfactory
	SUNFLOWER		
	CHARLES C. HART SEED CO., Wethersfield, Conn.		
1027F	Mammoth Russian Coolidge Paint & Supply Co., Watertown	Good	Satisfactory
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
1103F	Mammoth Russian Faulkner Hardware Co., Palmer	Good	Satisfactory
	ROSS BROS. CO., Worcester, Mass.		
1043F	Russian Mammoth Donovan's, Saugus	Good	Satisfactory
	VERBENA		
	GRACE G. ANDERSON CO., INC., Dunkirk, N. Y.		
284F	Hybrids, Choice Colors Tilton School, Haverhill	Good	Satisfactory 8 colors
	NORTHRUP, KING & CO., Minneapolis, Minn.		
744F	Mammoth Flowering Scarlet F. W. Woolworth Co., Wollaston	Fair	Satisfactory
	J. B. RICE, JR., INC., Shushan, N. Y.		
589F	Choice Mixed A. J. Desmarais Hardware, Fall River	Good	Satisfactory 10 colors
	ROSS BROS. CO., Worcester, Mass.		
198F	Mammoth White	Good	Satisfactory
	WALLFLOWER		
	NORTHRUP, KING & CO., Minneapolis, Minn.		
751F	Single Mixed F. W. Woolworth Co., Wollaston	Good	Satisfactory

FLOWER SEED INSPECTION — Concluded

Lab. No.	Kind and Variety of Seed, Wholesale Distributor, Dealer When Other Than Wholesale Distributor, and Place Collected	Field Tests: Germination	Field Tests: Performance
	ZINNIA		
	JOSEPH BRECK & SONS, Boston, Mass.		
482F	Super Crown of Gold Pastel Tints Mixed Joseph Breck & Sons, Boston	Good	Satisfactory 10 colors
	COBURN SEED & SUPPLY CO., Chelmsford, Mass.		
396F	Giants of California Enchantress	Good	Satisfactory 5% off color
	CROSMAN SEED CORP., East Rochester, N. Y.		
446F	California Giant Crimson Queen Pittsfield Hardware-Plumbing Supply Co., Pittsfield	Good	Satisfactory
	DEERINGTON ZINNIA GARDENS, Bangerville, Ind.		
875F	Deerington Special, Salmon, Shell and Rose-Pink J. J. Newberry Co., Worcester	Good	Satisfactory 7 colors
	THOMAS W. EMERSON CO., Boston, Mass.		
102F	Dahlia-flowered Red	Good	Satisfactory Slight variation in color
	FREDONIA SEED CO., Fredonia, N. Y.		
1025F	Giant Finest Mixed Town Paint & Supply Co., Natick	Fair	Satisfactory
	JOSEPH HARRIS CO., INC., Rochester, N. Y.		
125F	Crimson Monarch Joseph Harris Co., Inc., Cambridge	Good	Satisfactory 5% off color
	MANDEVILLE, KING & CO., Rochester, N. Y.		
363F	California Giant Rose Pink Melrose Hardware Co., Melrose	Poor	Not Satisfactory
	THE NEW ENGLAND TORO CO., West Newton, Mass.		
163	Giant Red	Good	Satisfactory 10% off color
	NORTHRUP, KING & CO., Minneapolis, Minn.		
749F	Giant Double Rose F. H. Woolworth Co., Wollaston	Good	Fair, 50% off color and type
	THE PAGE SEED CO., Greene, N. Y.		
780F	Large California Mixed Colors LaPalme Hardware Co., Webster	Fair	Satisfactory 12 colors
	JEROME B. RICE SEED CO., Cambridge, N. Y.		
921F	Giant Dahlia Flowered S. B. Sibley & Son, Ware	Poor	Not satisfactory
	ROSS BROS. CO., Worcester, Mass.		
196F	Mammoth Deep Salmon Rose	Good	Satisfactory 20% off color

TYPE AND PERFORMANCE STUDIES WITH SEED OATS

Conducted in Cooperation with the Department of Agronomy,

William G. Colby, Research Professor

In 1938, preliminary studies on different lots of Seed Oats indicated that a wide variety of strains was being offered for sale in Massachusetts and that different lots varied widely in performance. (Control Series Bulletin 96, 1938.) Further and more extensive studies were carried on in 1941; a larger number of seed lots was tested, and each lot was studied in greater detail than in 1938.

The test included 39 lots of Seed Oats collected from different points of sale throughout the State by the Department of Agriculture (indicated in the table by the letter "F" following the sample number). The source of the seed and the laboratory germination records will be found in Control Series Bulletin 107, 1940, and on pages 17 and 19 of this bulletin. Sample No. 8837 was taken from a lot of oats purchased by the Department of Mental Health for Monson State Hospital. To make the study more complete, 11 additional varieties of oats which had given superior performance in other sections of the country were also included. Varieties Hancock, Boone, Tama, and Marion were obtained from the Iowa Agricultural Experiment Station at Ames, Iowa; Victory, Gopher, Upright, Richland, Cornellian, and Lenroc were obtained through the Eastern States Cooperative Milling Corporation in Buffalo, New York; and Huron was obtained from the Michigan Agricultural Experiment Station at East Lansing, Michigan.

Each plot was made up of three 15-foot rows. With the exception of nine lots of seed which were planted late (April 25) without replication, all other lots were planted in triplicate on April 15. In every instance an excellent stand and good growth were secured. Only the center row of each plot was harvested for use in determining yields of grain and straw.

As in 1938, different lots of commercial seed varied widely in their performance. Even though planted at the same time, the earliest variety headed out almost two weeks earlier than the latest. Yields of grain varied from 34 bushels to 46 bushels per acre, and straw yields varied from 1500 pounds to almost a ton. Similar differences in maturity dates were found with named varieties, but in all instances these differences were characteristic for the particular variety and were therefore expected. With most of the commercial lots of seed, the information on the identification tag was insufficient to indicate the variety represented. It was impossible to predict whether an individual lot of seed was early or late in maturing without first growing it in the field.

In at least 16 out of the 40 commercial lots grown, there was a mixture of different varieties. This was evidenced by wide differences in time of maturity, in height of plant, and even in type of plant from the same lot of seed. In several instances so-called "side oats" made up part of the mixture. Wide differences were also observed in the severity of smut infestation, although in certain cases seed treatment was a factor rather than varietal resistance.

Though not connected with the performance of individual seed lots, the importance of the early planting of oats was clearly demonstrated. The 31 lots seeded April 15 produced on the average approximately 7 more bushels of grain to the acre and 450 more pounds of straw to the acre than did the nine lots seeded ten days later, April 25.

The results of these studies definitely substantiate those obtained in a preliminary way in 1938 and indicate that, for the years 1940 and 1941 at least, seed oats offered for sale varied greatly in type and performance.

OAT VARIETIES AND LOTS OF COMMERCIAL SEED OATS GROWN AT AMHERST IN 1941

Variety or Lot No.	Date Headed	Date Ripe	Yields per Acre		Remarks
			Grain (Bu.)	Straw (Lb.)	
Planted April 15					
Hancock	6/14	7/14	34.0	1,415	
Richland	6/16	7/15	40.0	1,470	
Boone	6/18	7/16	45.5	1,670	
Marion	6/18	7/17	53.5	1,995	
Tama	6/19	7/17	42.5	1,595	
Gopher	6/20	7/17	45.5	1,505	
Huron	6/20	7/21	44.5	1,650	
Lenroc	6/24	7/21	41.5	1,725	
Cornellian	6/25	7/22	41.5	2,160	
Upright	6/27	7/23	41.5	1,870	
Victory	6/28	7/25	40.0	1,885	
Commercial Lots*					
664 F	6/14	7/14	44.5	1,815	
896 F	6/20	7/18	43.5	1,815	
1185 F	6/20	7/20	43.5	1,815	Mixture
919 F	6/20	7/20	40.0	1,615	Mixture
1100 F	6/21	7/21	39.5	1,870	Mixture
1105 F	6/21	7/21	44.0	1,830	Mixture
1197 F	6/26	7/22	40.5	1,740	
65 F	6/25	7/23	37.5	1,500	Mixture
687 F	6/26	7/23	36.5	1,615	
239 F	6/27	7/23	42.5	1,670	Mixture
238 F	6/27	7/23	41.0	1,760	Mixture
252 F	6/27	7/23	43.0	1,725	Mixture
979 F	6/27	7/23	46.0	1,980	Mixture
1087 F	6/27	7/23	46.0	1,960	
963 F	6/27	7/24	39.5	1,815	
599 F	6/27	7/24	34.0	1,850	
635 F	6/27	7/24	37.5	1,780	Mixture
756 F	6/27	7/24	43.0	1,725	Mixture
976 F	6/27	7/25	37.0	1,740	
813 F	6/27	7/25	42.0	1,780	
1095 F	6/27	7/25	38.5	1,890	
873 F	6/27	7/25	36.5	1,635	
779 F	6/27	7/25	41.5	1,870	
920 F	6/27	7/25	41.0	1,690	Mixture
895 F	6/27	7/25	41.5	1,815	
828 F	6/27	7/25	39.5	1,790	Mixture
977 F	6/27	7/25	42.0	1,780	Mixture
1078 F	6/27	7/25	41.5	1,815	
688 F	6/27	7/25	40.0	1,760	
708 F	6/27	7/25	43.5	1,940	
942 F	6/27	7/25	40.0	1,725	

*Source of seed and laboratory germination records will be found in Control Series Bulletin 107, 1940, for the seeds planted April 15; in this bulletin, for the seeds planted April 25.

OAT VARIETIES AND LOTS OF COMMERCIAL SEED OATS GROWN AT AMHERST IN 1941—Concluded

Variety or Lot No.	Date Headed	Date Ripe	Yields per Acre		Remarks
			Grain (Bu.)	Straw (Lb.)	
		Planted April 25*			
606 F	6/26	7/22	36.5	1,435	
8837	6/28	7/25	32.0	1,180	Mixture
496 F	6/30	7/25	37.5	1,760	
608 F	6/30	7/29	41.0	1,595	
609 F	6/30	7/29	30.5	1,250	
523 F	7/1	7/29	37.5	1,780	Mixture
611 F	7/3	7/29	30.0	1,290	
612 F	7/3	7/29	30.5	1,345	
209 F	7/3	7/30	30.5	1,215	

*Source of seed and laboratory germination records will be found in Control Series Bulletin 107, 1940, for the seeds planted April 15; in this bulletin, for the seeds planted April 25.

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Twenty-second Annual Report of Pullorum Disease Eradication in Massachusetts

By the Poultry Disease Control Laboratory

In the 1941-42 testing season, 667,824 samples (662,715 chicken and 5,109 fowl other than chicken) were tested. In 366 chicken flocks, 653,080 birds were tested and of these 591,628 were in non-reacting flocks. The percentage of positive tests was 0.27. No reactors were detected among tested birds in 5 of the 13 counties. The marked increase (99,153) over the previous season in the number of birds in non-reacting flocks reveals further progress in the establishment and maintenance of pullorum-free flocks.

MASSACHUSETTS STATE COLLEGE
AMHERST, MASS.

TWENTY-SECOND ANNUAL REPORT OF PULLORUM DISEASE ERADICATION IN MASSACHUSETTS 1941-1942

By the Poultry Disease Control Laboratory[1]

Introduction

The testing results for the 1941-42 season reveal further progress in the eradication of pullorum disease in Massachusetts. The value of pullorum-free stock is fully recognized by the majority of flock owners for whom testing service is rendered. Without the fullest appreciation in regard to annual 100 percent testing of flocks and the measures preventing the introduction of infection, little if any progress in the eradication of the disease might be expected. Massachusetts is one of a few states which are leading in the establishment of pullorum-free flocks. This has attracted many out-of-state purchases, especially from the broiler industry. The complete eradication of the disease from the flocks has eliminated the losses from pullorum infection among chicks and growing and mature stock. Hatching eggs, baby chicks, and mature stock from pullorum-free sources are readily obtainable, and the continuous practice of replacing infected flocks with stock from pullorum-free sources is an effective means of further eradicating the disease from the State.

Appreciation is extended to the various agencies that have given direct or indirect assistance to pullorum-disease eradication. The necessity for the dissemination of reliable information at the appropriate time cannot be ignored in this program. Through such a practice a great service is extended to the flock owner who is the "key man" in establishing and maintaining his flock free of pullorum disease. Massachusetts flock owners deserve much credit for the splendid progress that has been made in pullorum-disease eradication.

Summary of Service Rendered

Applications received		406
Applications cancelled		15
Flocks tested		391
Chicken flocks	360	
Chicken and turkey flocks	6	
Turkey flocks	25	
Number of tests		674,403
Chickens:		
Routine	660,517	
Experimental	2,198	
Fowl other than chickens:		
Routine	4,541	
Experimental	7,147*	
Owners receiving necropsy service		35
Necropsies of reacting birds		65**

*Includes 6,579 paratyphoid tests.
**Includes 50 chickens and 15 turkeys.

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TABLE 1. DISTRIBUTION OF TESTS AND REACTORS BY COUNTIES AND BY BREEDS

Breeds		Barnstable	Berkshire	Bristol	Dukes	Essex	Franklin	Hampden	Hampshire	Middlesex	Norfolk	Plymouth	Suffolk	Worcester	Totals	Percent Positive Tests
Rhode Island Reds	(Total tests	2,610	2,739	62,773	...	59,362	31,199	14,072	25,112	78,569	85,645	29,956	608	83,078	475,723	
	(Positive tests	0	7	2	...	4	0	1	12	49	1,513	0	0	0	1,588	0.33
Barred Plymouth Rocks	(Total tests	762	657	16,555	1,807	7,842	19,090	3,730	5,225	16,000	8,357	11,648	..	17,963	109,636	
	(Positive tests	0	0	1	0	0	0	3	0	4	123	0	...	2	133	0.12
White Plymouth Rocks	(Total tests	...	...	801	.	2,019	....	603	....	5,721	1,800	11,832	...	....	22,776	
	(Positive tests	...	...	0	...	0	....	0	....	0	0	0	...	....	0	0.00
White Leghorns	(Total tests	...	3,143	1,176	..	4,815	....	75	34	....	....	....	...	....	9,243	
	(Positive tests	...	0	0	.	0	....	0	0	....	....	....	...	....	0	0.00
New Hampshires	(Total tests	...	933	5,085	734	7,299	5,714	..	447	6,227	....	12,550	...	935	39,924	
	(Positive tests	...	16	0	0	1	0	....	0	18	....	0	...	0	35	0.09
Miscellaneous	(Total tests	341	...	137	.	767	69	48	74	14	2,357	435	...	1,171	5,413	
	(Positive tests	0	...	0	..	0	0	1	0	0	0	0	...	0	1	0.02
Total Tests		3,713	7,472	86,527	2,541	82,104	56,072	18,528	30,892	106,531	98,159	66,421	608	103,147	662,715	
Positive Tests	(Number	0	23	3	0	5	0	5	12	71	1,636	0	0	2	1,757	
	(Percent	0.00	0.31	0.003	0.00	0.006	0.00	0.03	0.04	0.07	1.67	0.00	0.00	0.002		0.27

Distribution of Tests and Reactors

Table 1 gives the distribution of tests and reactors by counties and by breeds. In 13 counties, 662,715 chicken samples were tested, of which 1,757 (0.27 percent) were positive. Middlesex, Worcester, and Norfolk counties led in the number of samples tested. In five counties (Barnstable, Dukes, Franklin, Plymouth, and Suffolk), no reactors were found among the birds tested. No reactors have been found in Barnstable and Plymouth counties for three successive years. Norfolk County had the highest percentage (1.67) of positive tests, which is attributed to one large infected flock.

The following breeds and varieties were tested: Bantam, Barnevelder, Barred Plymouth Rock, Black Minorca, Brahma, Brown Leghorn, Cochin, Columbian Rock, New Hampshire, Rhode Island Red, Silver Laced Wyandotte, White American, White Leghorn, White Plymouth Rock, White Wyandotte, and Crosses. Rhode Island Red and Barred Plymouth Rock are the predominating breeds. Reactors were detected among the Barred Plymouth Rock, Brown Leghorn, New Hampshire, and Rhode Island Red breeds.

Of the total number of samples tested, 601,932 were obtained from females (hens 67,625 and pullets 534,307) and 60,783 from males. The percentages of reactors were 0.02 among the hens, 0.28 among the pullets, and 0.44 among the males. The greater percentage of reactors among the males may be explained in part by the fact that most of them were detected in one large infected flock. In this large flock, the percentage of reactors among the females was 3 and among the males 5 percent.

Testing of Fowl Other than Chickens

A total of 5,109 samples collected from fowl other than chickens was tested for pullorum disease. Six ducks, 2 guinea fowl, and 5,101 turkeys were tested with no reactors. These results indicate that pullorum disease is no serious problem to Massachusetts turkey breeders. It is advisable however, that the owners of turkey breeding flocks exercise every possible precaution to prevent the introduction of this disease into their flocks.

During the past year, four turkey flocks representing 6,579 samples were tested for paratyphoid infection. Three flocks were classified as non-reacting but reactors were found in the fourth flock on tests repeated at frequent intervals. As was pointed out in the previous Annual Report, the macroscopic agglutination test is not sufficiently reliable in detecting infected birds so that it can be employed as a practical means of eliminating this infection from commercial flocks.

Among 15 reacting birds received at the laboratory for necropsy, the causative agent was isolated from 11.

Annual Testing of Flocks

Table 2 shows the results from flocks tested for the first time, intermittently, for two consecutive years, and for three or more consecutive years. In every group, the number of birds tested showed an increase over the previous season.

Flocks tested for the first time numbered 77 and represented 62,435 birds and 62,501 tests, with an average of 0.04 percent positive tests. Only three of the flocks tested for the first time were found to be infected. In one flock of 13 birds, 4 reactors (30.77 percent) were detected. In the other two flocks, 1,811 and 1,379 birds were tested, with 0.83 and 0.51 percent reactors, respectively. Approximately 95 percent of all the birds in flocks tested for the first time were in non-reacting flocks. It is indeed encouraging to find so little infection among flocks

tested for the first time. Many of these flocks represent stock purchased from pullorum-free sources. This suggests the valuable influence of flocks that have been tested annually and found free of infection.

The 34 flocks tested intermittently represented 50,642 birds and tests. The percentage of positive tests was 0.15. Approximately 86 percent of the birds tested were in non-reacting flocks. Six infected flocks were detected in the intermittent group. In three flocks less than one percent reactors was detected. In the other three flocks, the first had 1.43 percent reactors among 2,718 birds; the second, 1.71 percent reactors among 933 birds; and the third, 9.52 percent reactors among 21 birds. In only one instance was the flock 100 percent negative two years prior to the 1941-42 test. In three other flocks infection was not detected on the last test, but the period between tests was three years or more.

In the 37 flocks tested for two consecutive years, 44,482 birds were tested. The percentage of reactors was 0.01, the lowest of all four groups. Approximately 98 percent of all birds tested in this group were in non-reacting flocks, and only two flocks were classified as infected. One flock of 121 birds had 1.65 percent reactors and the other flock had 0.57 percent reactors among 526 birds. Infection had been found in both flocks the previous year.

In the group tested for three or more consecutive years, 218 flocks representing 495,521 birds and 505,006 samples were tested. The percentage of positive tests was 0.33, attributed mainly to one large flock in which 1,597 of the 1,650 reactors in this group were found. Approximately 90 percent of all the birds tested in this group were in non-reacting flocks. The number of 100 percent tested, non-reacting flocks in this group was 197, representing 435,068 birds. This far exceeds the combined totals (126 flocks and 138,310 birds) for the other three groups.

Only 29 flocks representing 21,494 birds were partially tested, and 96 percent of the total birds tested were in 100 percent tested flocks. It is encouraging that poultrymen realize the value of testing all birds on the premises. The true pullorum status of the flock cannot be determined by testing only part of the flock.

TABLE 2. ANNUAL TESTING VERSUS SINGLE AND INTERMITTENT TESTING

Classification	Flocks	Birds	Total Tests	Positive Tests		Negative Flocks		Positive Flocks	
				Number	Percent	100% Tested	Partially Tested	100% Tested	Partially Tested
Tested for the first time	77	62,435	62,501	26	0.04	68	6	3	0
Tested intermittently	34	50,642	50,642	76	0.15	26	2	5	1
Two consecutive years	37	44,482	44,566	5	0.01	32	3	1	1
Three or more consecutive years	218	495,521	505,006	1,650	0.33	197	16	5	0
Totals	366	653,080	662,715	1,757	0.27	323	27	14	2

The data in Table 2 indicate that pullorum-disease eradication is being accomplished with great success and that the Massachusetts poultry industry is in a very favorable position in producing stock which is free of pullorum infection. However, it is hoped that the scattered foci of infection which still exist can in time also be eliminated.

Appearance of Infection in Flocks Previously Negative

Table 3 gives the testing results for flocks which had been non-reacting for one or more years but showed infection in 1941-42. One flock (Number 2) was partially retested with no reactors the previous season. It is quite possible that the infection was not completely eradicated from this flock. Only one reactor was detected among the 3,524 birds tested.

TABLE 3. APPEARANCE OF INFECTION IN FLOCKS PREVIOUSLY NEGATIVE

Flock	Number of Years Negative	1941-42 Season			Explanation for Infection
		Flock Total	Number Tested	Positive Tests Percent	
1	8	4,246	4,094	0.59	Questionable preventive measures
2	1	3,524	3,524	0.03	Incomplete eradication
		3,500	254*	0.00	
3	15	2,285	2,285	0.04	Returned birds from egg-laying contest
		2,284	86*	0.00	
4	10	1,316	1,316	0.68	Unknown
5	14	880	880	1.02	Contact with untested stock
		779	778*	0.39	
		724	724*	0.00	
			348*	0.00	
6	2	3,481	3,481	0.14	Unknown

*Indicates retests.

Among the other five flocks, only one revealed more than one percent reactors. This flock had been negative for 14 consecutive years. The infection might be attributed to contact with stock from a neighboring flock whose pullorum status was unknown.

Flocks 1, 3, and 4 had been negative for 8 or more consecutive years. Flock 1 had 24 reactors among 4,094 birds. The source of infection could not be determined definitely, although it was ascertained that there was some laxity in carrying out certain preventive measures.

The infection detected in Flock 3 was in a group of birds returned from an egg-laying contest.

The origin of the infection in Flocks 4 and 6 could not be explained in any way. However, in Flock 6 infection existed on the premises two years prior to the last test.

The number of so-called "breaks" for the 1941-42 season has remained at the same level as in previous seasons. In all cases the amount of infection is very small. With the exception of one case (Flock 3), the source of infection is doubtful and at what age the flock became infected is not known. The low degree of infection would suggest that the stock was not highly susceptible to certain strains of *S. pullorum*. This does not coincide with observations on New England stock imported into areas where infection is more prevalent. No explosive outbreaks nor heavy infections have been observed in flocks which have been negative for many years. It is reasonable to assume that heavy infections might occur, but it would seem logical that other factors such as strain differences of *S. pullorum*

also might be responsible for the increased infectivity. Stock from pullorum-free flocks should not be considered unsuitable for importation into infected areas when proper eradication and prevention measures are observed. The appearance of a high degree of infection in clean stock cannot be held against the stock, but involves failure to observe the following disease eradication and prevention measures.

1. All the birds on the premises should be tested each year.
2. If infection is present, the entire flock should be retested within four to six weeks until a negative report is obtained, provided the value of the birds justifies the expenditure.
3. Every reactor, regardless of its value, should be removed from the premises and sold for slaughter immediately upon receipt of the report.
4. Offal from all birds dressed for market or home consumption as well as dead birds that are not fit for consumption should be burned.
5. The poultry houses, runs, and equipment, should be thoroughly cleaned and disinfected immediately after removal of reactors. Provide an empty pen to each house to facilitate cleaning and disinfection during the winter months. Use disinfectants approved by the United States Department of Agriculture.
6. Birds removed from the premises to egg-laying contests, exhibitions, etc., should be held in quarantine and determined free of disease before they are readmitted into the flock.
7. Purchase of stock in the form of adults, chicks, and eggs should be from known pullorum-disease-free flocks. Consult your county agent regarding additions or replacements in your flock.
8. Eggs should not be saved for hatching until after a flock has been tested and all the infected birds removed. Early pullet testing will permit early hatching.
9. Fresh and infertile eggs from unknown or infected sources should not be fed to chickens or exposed to animals such as crows, sparrows, and skunks that may carry or spread the infection.
10. Poultrymen should not custom hatch for untested or infected flocks (including fowl other than chickens).
11. Owners of pullorum-disease-free flocks should not have hatching done where infected eggs or stock may be found.
12. Poultrymen should not buy feed in bags that have been used or exposed to infection. (Such bags if properly disinfected will be safe for further use.)
13. Poultrymen should regard fowl other than chickens as a possible source of pullorum infection unless tested and found free from pullorum disease.
14. Poultrymen should not use equipment that has been exposed to or contaminated with infective material unless it is properly cleaned and sterilized or disinfected.

Non-Reacting and Positive Flocks Classified by Counties

Table 4 gives the distribution of non-reacting and positive flocks by counties. In the 13 counties, 350 non-reacting flocks were identified, representing 591,628 birds. Of this total, 323 were 100 percent tested and 27 were partially tested, representing 573,378 and 18,250 birds, respectively. The number of birds in non-reacting flocks is by far greater (almost 95,000) than the number found in any year during the 22-year testing period. It is also encouraging that more of the flocks are 100 percent tested.

Worcester, Middlesex, Bristol, and Essex counties led in the number of tested birds in non-reacting flocks.

TABLE 4. NON-REACTING AND POSITIVE FLOCKS CLASSIFIED BY COUNTIES

County	100% Tested		Partially Tested		Total	
	Flocks	Birds	Flocks	Birds	Flocks	Birds
Non-Reacting Flocks						
Barnstable	2	3,713	—	—	2	3,713
Berkshire	2	5,160	—	—	2	5,160
Bristol	47	84,264	4	1,737	51	86,001
Dukes	2	2,541	—	—	2	2,541
Essex	47	77,251	6	4,188	53	81,439
Franklin	32	54,895	1	1,177	33	56,072
Hampden	20	18,244	—	—	20	18,244
Hampshire	31	29,042	—	—	31	29,042
Middlesex	44	88,883	5	4,675	49	93,558
Norfolk	23	44,344	4	2,049	27	46,393
Plymouth	29	64,427	2	1,994	31	66,421
Suffolk	1	608	—	—	1	608
Worcester	43	100,006	5	2,430	48	102,436
Totals	323	573,378	27	18,250	350	591,628
Positive Flocks						
Berkshire	2	2,312	—	—	2	2,312
Bristol	—	—	1	526	1	526
Essex	2	581	—	—	2	581
Hampden	3	218	—	—	3	218
Middlesex	5	12,633	—	—	5	12,633
Norfolk	1	41,753	1	2,718	2	44,471
Worcester	1	711	—	—	1	711
Totals	14	58,208	2	3,244	16	61,452

In Barnstable, Berkshire, Dukes, Franklin, Hampshire, Plymouth, and Suffolk counties, no flocks were classified as infected at the close of the testing season. In seven counties, 16 infected flocks representing 61,452 birds were listed. The bulk of the birds (44,471) in infected flocks was found in two flocks in Norfolk County.

The flocks tested in Barnstable, Dukes, Hampden, Hampshire, and Suffolk counties were all 100 percent tested. The value of 100 percent testing is recognized by the majority of flock owners. Partial flock testing is not a sound procedure in determining the true status of a flock. The retention of untested birds on the premises may lead to the spread of the disease from the untested to the tested birds. Furthermore, flocks in which all birds over five months of age are tested can qualify for one of the official grades recognized by the Massachusetts Department of Agriculture, provided no reactors are found. Flock owners are encouraged to have their flocks officially recognized by the Massachusetts Department of Agriculture.

Comparison of 1940-41 and 1941-42 Testing

Table 5 gives the comparison of the 1940-41 and 1941-42 testing results for the different counties. The increases in the number of tested flocks, birds, and samples and non-reacting flocks are very substantial. The number of tested birds increased in all but one county. The average percentage of infection increased slightly over the previous season, which is attributed to the large number of reactors found in one large flock. On the whole, the percentages of infection for

the different counties have changed but little in comparison with the previous season. A substantial increase in the number of non-reacting flocks is very encouraging.

TABLE 5. COMPARISON OF 1940-41 AND 1941-42 TESTING

County	Flocks	Birds	Tests	Positive Tests Percent	Non-Reacting Flocks
		1940-41 Season			
Barnstable	2	3,377	3,377	0.00	2
Berkshire	6	12,013	12,548	0.08	6
Bristol	48	75,605	78,961	0.05	46
Essex	33	45,932	46,585	0.00	33
Franklin	27	48,673	48,673	0.004	26
Hampden	20	16,964	16,964	0.06	19
Hampshire	19	21,157	21,157	0.00	19
Middlesex	53	88,086	89,093	0.09	50
Norfolk	31	71,745	77,455	0.43	28
Plymouth	29	54,735	54,735	0.00	29
Worcester	41	89,041	89,041	0.00	41
Totals	309	527,328	538,589	0.09	299
		1941-42 Season			
Barnstable	2	3,713	3,713	0.00	2
Berkshire	4	7,472	7,472	0.31	2
Bristol	52	86,527	86,527	0.003	51
Dukes	2	2,541	2,541	0.00	2
Essex	55	82,020	82,104	0.006	53
Franklin	33	56,072	56,072	0.00	33
Hampden	23	18,462	18,528	0.03	20
Hampshire	31	29,042	30,892	0.04	31
Middlesex	54	106,191	106,531	0.07	49
Norfolk	29	90,864	98,159	1.67	27
Plymouth	31	66,421	66,421	0.00	31
Suffolk	1	608	608	0.00	1
Worcester	49	103,147	103,147	0.002	48
Totals	366	653,080	662,715	0.27	350

Twenty-Two-Year Testing Period Shows Progress in Eradication

Table 6 gives the testing results for a 22-year testing period. It will be noted that during this period an increasing number of flocks and birds have been tested and that the percentage of infection has been reduced to a very low figure. During the past 11 years, the average percentage of infection has been less than one percent for all samples tested, a total of 5,101,653. This consistently low percentage of reactors shows that Massachusetts flock owners have been successful in eliminating the disease from the bulk of their breeding flocks. This is further substantiated by the increasing percentage of birds in non-reacting flocks.

These results show that pullorum disease can be eliminated through the application of sound eradication and prevention measures. Furthermore, the progress is very remarkable in view of the fact that the testing work has operated on a voluntary basis. For the most part, flock owners have made every effort to understand the pullorum-disease problem and have voluntarily cooperated in establishing and maintaining pullorum free flocks.

TABLE 6. TWENTY-TWO-YEAR PULLORUM DISEASE TESTING SUMMARY

Season	Flocks	Birds	Total Tests	Positive Tests Percent	Non-reacting Flocks	Birds in Non-reacting Flocks	
						Number	Percent
1920-21	108	24,718	24,718	12.50	25	2,414	9.77
1921-22	110	29,875	29,875	12.65	27	4,032	13.50
1922-23	121	33,602	33,602	7.60	29	5,400	16.07
1923-24	139	59,635	59,635	6.53	38	11,082	18.58
1924-25	156	66,503	66,503	2.94	79	25,390	38.18
1925-26	201	67,919	67,919	2.31	124	33,615	49.49
1926-27	249	127,327	127,327	4.03	114	40,269	31.63
1927-28	321	190,658	232,091	6.52*	138	80,829	42.39
1928-29	413	254,512	304,092	4.25*	228	153,334	60.25
1929-30	460	331,314	386,098	2.17	309	203,038	66.97
1930-31	447	356,810	402,983	1.47	328	267,229	74.89
1931-32	455	377,191	420,861	0.90	355	298,534	79.15
1932-33	335	296,093	300,714	0.47	276	238,074	80.41
1933-34	262	263,241	284,848	0.53	229	212,782	80.83
1934-35	244	281,124	301,887	0.39	213	251,778	89.56
1935-36	252	329,659	344,081	0.30	230	315,215	95.95
1936-37	307	448,519	561,762	0.37	281	424,431	94.63
1937-38	308	480,227	497,769	0.17	286	457,466	95.26
1938-39	355	571,065	615,205	0.34	327	469,134	82.15
1939-40	346	573,000	673,222	0.51	332	497,356	86.80
1940-41	309	527,328	538,589	0.09	299	492,475	93.39
1941-42	366	653,080	662,715	0.27	350	591,628	90.59

*Based on total birds tested: 1927-28, 190,658 birds; 1928-29, 254,512 birds.

Comments and Suggestions

In view of present circumstances, it seems advisable to refer to some phases of pullorum-disease testing that concern the operation and progress of the program. It is hoped that war conditions will not seriously interfere with the testing of flocks nor greatly hamper the flock owners in their program of disease eradication and prevention. A set-back in the progress which has been attained through many years of hard effort would mean a great loss to the Massachusetts poultry industry. The following comments and suggestions should receive consideration.

Annual Testing: The testing of breeding flocks each year is essential because of the possible sources of infection that prevail within the State. One must recognize that there are infected flocks within the State and that the unrestricted traffic of infected stock presents hazards for reinfecting pullorum-free flocks. While barriers against the introduction of infection have been found effective, yet under practical conditions in some instances prevention measures have either failed or not been properly observed. This fact is pointed out in the section entitled "Appearance of Infection in Flocks Previously Negative." As long as present conditions prevail, annual testing will be necessary if one desires to know the true pullorum status of a flock.

It is hoped that flock owners will not give up testing their flocks because of war conditions. If infection once gains a foothold in a flock, the expense and the difficulty of eradicating it become exceedingly great. Quality of the stock will be greatly reduced because of infection and it may require several years to correct such losses. The careful and cautious flock owner will consider the omission of testing for one year or longer as highly inexpedient.

Testing All Birds on the Premises: Present regulations for the official Massachusetts pullorum grades require that all birds over five months of age be tested. This requirement is based on the fact that the true status of a flock cannot be determined unless all birds in the flock are tested, and applies to all breeding flocks even though part of the flock may be used only for egg and meat production. A small amount of infection in a flock can readily escape detection when it happens to be located in untested birds. It has sometimes happened that a single infected bird has been detected in a flock of several hundred birds, and this reactor was the last bird bled in the flock. When the infection is small, that does not mean that it cannot increase in a mature flock. Testing results reveal that pullorum infection in an adult flock is not static. Therefore if untested infected birds exist on the premises, they represent a source of danger to the tested birds that have been found free from the disease.

Prevention of Pullorum Infection: To avoid pullorum infection involves many disease prevention and sanitary measures. These measures have been listed in a previous section of this bulletin. More strict adherence to these measures may prevent difficulty and disappointment for some flock owners. Last season one flock was found infected that had been negative for 14 consecutive years. The flock owner reported that his birds were permitted direct contact with his nieghbor's birds of unknown pullorum-disease status. In another instance, an infected bird, returned from an egg-laying contest, introduced infection into a flock that had been negative for 15 years. There are other avenues of infection in addition to the two mentioned which point out that the owner of a pullorum-free flock should follow an effective disease prevention program. Especial attention is called to this matter because under existing war conditions one is apt to ignore the full significance and necessity of a sound prevention program.

Official Recognition of Tested Flocks: The Massachusetts Department of Agriculture is the official state agency under the National Poultry Improvement Plan. Two official pullorum-tested grades (Massachusetts U. S. Pullorum Passed and Massachusetts U. S. Pullorum Clean) have been established. For complete information regarding the requirements and application for these grades, inquiries should be sent to the Massachusetts Department of Agriculture, State House, Boston. Flock owners whose flocks are eligible should not fail to apply for official recognition. Lists of officially recognized flocks are published and serve as a guide for buying pullorum-free stock. Poultrymen are encouraged to select from known free sources when new stock is introduced onto the premises.

Cooperative Effort: In the past, the testing laboratory has received very fine cooperation from flock owners. It has been the policy of the laboratory to render high-quality service as economically as possible and to cooperate with the flock owner to make the service of the greatest value to him. In view of the labor scarcity and other restrictions which have resulted from the war, it is hoped that the laboratory and the flock owners will not encounter any problems which cannot be met satisfactorily.

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Inspection of Commercial Feedstuffs

By Philip H. Smith

This is the forty-eighth report of feeding stuffs inspection. It contains information relative to the carotene content of alfalfa meals, the manganese content of commercial mashes, the riboflavin content of various products, the protein quality of fish and meat meals, and the quality of ground oats found on the Massachusetts markets. Tables of analyses (protein, fat, and fiber) are omitted.

MASSACHUSETTS STATE COLLEGE

AMHERST, MASS.

INSPECTION OF COMMERCIAL FEEDSTUFFS

By Philip H. Smith[1]

During the season extending from September 1, 1941, to May 1, 1942, 1,518 samples of feeding stuffs were collected and examined. For the first time in many years, however, the results will not be published, as it is believed that, because of the scarcity of certain materials and enforced priorities, these results would not form an accurate basis for judging commercial feedstuffs to be purchased in the immediate future. With few exceptions the samples examined corresponded closely to the required guarantees of protein, fat and fiber. In no instance were they enough out of line to warrant prosecution.

Considerable time has been spent upon matters which, while they are not a part of the requirements of the feed control law, have direct relation to the value of feeding stuffs. These include the carotene content of alfalfa meals, the riboflavin content of various products, the manganese content of commercial poultry rations, and the protein quality index of meat and fish by-products. The results of this work form the basis of the present bulletin.

Since the use of dried skim milk in poultry feeds has been curtailed, poultrymen have been forced to find substitutes which also carry a relatively high riboflavin content. The dried solubles contained in distillery refuse appear to be an important source. Dried distillers grains without the dried solubles are generally sold as "light" distillers grains while those which contain the dried solubles are sold as "dark" distillers grains. This terminology is not entirely correct, as faulty drying may cause a dark product which does not carry the dried solubles. Purchasers should demand distillers grains with dried solubles if they expect to obtain a product with an appreciable riboflavin content.

Our attention has been called to the use of ground whole wheat in various grades of middlings. At certain times there has been a spread in price of about ten dollars a ton between middlings and Government wheat, which lends plausibility to the assertion. The addition of ground wheat to middlings would decrease both the fat and fiber content. It is also probably true that certain mills have modified their milling process to include a greater proportion of the wheat berry in the flour with a consequent gain in the nutritive value of the flour at the expense of the by-products.

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[1]The following staff members assisted in the inspection: John W. Kuzmeski, H. Robert DeRose, Albert F. Spelman, Leo V. Crowley, and C. Tyson Smith, chemists; Frederick A. McLaughlin, microscopist; James T. Howard, inspector, Cora B. Grover, Clerk.

GROUND AND PULVERIZED OATS

There appears to be a general misunderstanding as to what really constitutes a ground oat. The Federal Grain Standards confuse the issue by declaring that any mixture containing at least 80 percent of sound oats shall be considered as "oats." We have yet to find oats of No. 2 grade (94 percent of sound cultivated oats) that did not carry at least 4 percent of fat. The table of analyses which follows indicates that some of the samples cannot be considered as better than No. 4 (80 percent of sound cultivated oats) and in some instances are of a sufficiently low grade to belong to the group known as feeding oats. It is believed that the grade of oats from which ground oats are made should appear as a part of the guarantee label. Attention is called to the two samples of ground oats manufactured by Jacob Trinley & Sons. While they may be derived from an oat coming under one of the numerous Federal grades, they can in no sense be considered **pure** ground oats as labeled.

As a basis of comparison, the average analysis of 33 samples of oats of known purity is given (95 percent or better of sound cultivated oats). This corresponds with the No. 2 Federal grade. These averaged from 31 to 45 pounds in test weight per bushel. No direct and consistent relation was noted between the analysis and the test weight.

Average analysis of ground oats, 33 samples

	Percent
Water	10.3
Protein	12.1
Fat	4.8
Nitrogen free extract	59.5
Fiber	10.0
Ash	3.3

Analyses of Ground Oats (Percent)

Manufacturer and Brand	Sampled at	Water	Protein		Fat		Nitrogen Free Extract	Fiber		Ash
			Found	Guaranteed	Found	Guaranteed		Found	Guaranteed	
Dietrich & Gambrill, Inc.										
D & G Ground Mixed Oats	Morse Bros., Southbridge	11.0	13.1	11.0	4.8	4.0	57.3	10.7	13.0	3.1
Doughboy Mills, Inc.										
Doughboy Pulverized White Oats	United Cooperative Farmers, Inc., Fitchburg	10.0	11.6	12.0	2.8	3.0	61.1	10.9	12.0	3.6
Fruen Milling Co.										
Fruen's Standard Pulverized Oats	Community Feed Stores, So. Deerfield	10.2	11.8	12.0	3.2	3.0	59.6	11.6	13.0	3.6
Hood Mills Co.										
Ground Oats	Borden Grain Co., Taunton	9.4	10.5	10.0	1.9	2.0	57.2	15.8	14.0	5.2
Pulverized Feed Oats	Borden Grain Co., Taunton	9.6	12.4	12.0	2.3	2.0	58.2	13.3	13.0	4.2
Pulverized Feed Oats	Mansfield Milling Co., Mansfield	10.8	12.8	12.0	2.4	2.0	57.5	12.5	13.0	4.0
N. E. Retail Grain Dealers Coop. Assn.										
Ground Oats	Squier & Co., Monson	11.7	11.3	—	3.0	—	58.2	12.3	—	3.5
Northern Supply Co.										
Pulverized Oats	George A. Fair, Holliston	11.2	12.2	12.0	3.1	3.5	58.9	11.0	12.0	3.6
Pulverized Oats	United Cooperative Farmers, Inc., Fitchburg	10.8	12.2	12.0	3.8	3.5	57.2	11.9	12.0	4.1
Ogden Grain Co.										
Ograinco Ground Oats	H. O. Davenport, West Bridgewater	12.5	12.2	—	3.0	—	60.4	8.5	—	3.4
Purity Oats Co.										
Pulverized Oats	C. P. Washburn Co., Middleboro	8.2	11.5	12.0	4.6	4.5	58.8	12.7	12.0	4.2
Quaker Oats Co.										
Ground Oats	Borden Grain Co., Taunton	11.7	12.0	12.0	3.3	3.5	59.1	10.5	12.0	3.4
Jacob Trinley & Sons										
Ground Oats (made from Mixed Feed Oats)	Morse Bros., Southbridge	10.7	12.4	12.0	4.7	3.0	53.5	14.5	12.0	4.2
Pure Ground Oats	Wilder Grain Co., Lowell	11.8	12.2	10.0	2.3	3.5	62.2	8.3	12.0	3.2
Pure Ground Oats	F. Diehl & Co., Wellesley	10.6	12.3	10.0	3.7	3.5	58.7	10.6	12.0	3.5
Est. M. G. Williams										
Williams Ground Oats	Est. M. G. Williams, Taunton	12.7	11.6	—	3.9	—	60.2	8.4	—	3.2

CAROTENE CONTENT OF ALFALFA PRODUCTS

J. W. Kuzmeski and L. V. Crowley

This is a report on the carotene and vitamin A content of alfalfa products collected by our inspectors in December 1941. Most of the samples are from manufacturers' plants located in Massachusetts where registered feeds are made and retailed at the plant.

On account of the rapid deterioration of carotene in alfalfa held in storage, as much as 50 percent of the carotene may be lost in twelve months. A few examinations made by other chemists indicate that as much as 10 percent may be lost in transit from western states.

While opinion differs, it is believed that alfalfa should carry at least 50,000 International Units of vitamin A per pound when introduced into a feed. Certain feed manufacturers with definite methods of control set a much higher standard. The carotene content of a feed will continue to decrease after the alfalfa is incorporated. The following suggestions are offered:

1. Do not purchase requirements long in advance, especially during summer months.

2. Be assured of a high vitamin content at the time of shipping. The shipper can guarantee the vitamin content then. After that the loss is dependent upon the length of time in, and condition of storage.

Carotene content is converted to its vitamin A equivalent in International Units per pound by multiplying the parts per million of carotene by the factor 756.

While Control Service can in no way take the place of a commercial laboratory, it is prepared to make carotene assays of alfalfa products for those who have no other means available at a cost of $2.00 per sample. Before submitting samples, write for instructions.

Carotene Content of Alfalfa Products

Manufacturer and Brand	Carotene Parts per Million	Vitamin A*	Sacks in Stock	Dealer
A. B. Caple Co., Toledo, Ohio				
17% Capex Dehyd. Alfalfa Meal	131	99,036	4	Geo. H. Parker Grain Co., Danvers
17% Capex Dehyd. Alfalfa Meal	134	101,304	160	Eastern Grain Co., Bridgewater
17% Capex Dehyd. Alfalfa Meal	154	116,424	10	W. E. Atkinson Co., Newburyport
20% Capex Dehyd. Alfalfa Meal	223	168,588	70	Eastern Grain Co., Taunton
Denver Alfalfa Milling & Products Co., Lamar, Col.				
Dehyd. Alfalfa Meal	107	80,892	100	H. K. Webster Co., Lawrence
Fernando Valley Milling & Supply Co., Van Nuys, Cal.				
"Ideal Poultry Greens" Alfalfa Leaf Meal	48	36,288	35	Community Feed Stores, So. Deerfield
Green Acres Farms, Nazareth, Pa.				
Green Acres Brand Super-Quality Alfalfa Meal	98	74,088	3	Great River Milling Co., Westfield
Keystone Dehydrating Co., Nazareth, Pa.				
Keystone Super-Green Dehyd. Alfalfa Meal	61	46,116	40	Borden Grain Co., Taunton
Keystone Super-Green Dehyd. Alfalfa Meal	40	30,240	20	A. P. Ames & Co., Peabody
Keystone Super-Green Dehyd. Alfalfa Meal	48	36,288	2	M. W. Ellis Est., Peabody
Keystone Super-Green Dehyd. Alfalfa Meal	66	49,896	5	Curley Grain & Fuel Co., Wakefield
Keystone Super-Green Dehyd. Alfalfa Meal	72	54,432	80	Est. M. G. Williams, Taunton
Keystone Super-Green Dehyd. Alfalfa Meal	128	96,768	100	Borden Grain Co., Taunton
Keystone Super-Green Dehyd. Alfalfa Meal	96	72,576	200	D. Harbeck & Sons Co., New Bedford
Keystone Super-Green Dehyd. Alfalfa Meal	81	61,236	2	D. B. Hodgkins Sons Co., Gloucester
Keystone Super-Green Dehyd. Alfalfa Meal	146	110,376	60	United Coop. Farmers, Inc., Fitchburg
Keystone Super-Green Dehyd. Alfalfa Meal	72	54,432	150	Geo. B. Brown, Ipswich
Le Roy Alfalfa Corp., Le Roy, New York				
Dehyd. Alfalfa Meal	99	74,844	50	Jaquith & Co., Woburn
Dehyd. Alfalfa Meal	75	56,700	120	Jaquith & Co., Woburn
Luxora Gin Co., Luxora, Ark.				
Dehyd. Alfalfa Meal	170	128,520	5	D. F. Riley, North Hatfield
Meadow Brook Farms, Nazareth, Pa.				
Superior Alfalfa Meal	113	85,428	120	H. K. Webster Co., Lawrence
Superior Alfalfa Meal	96	72,576	12	Mansfield Milling Co., Mansfield
Superior Alfalfa Meal	157	118,692	30	Mansfield Milling Co., Mansfield

National Alfalfa Co., Toledo, Ohio				
Sun Cured Alfalfa Meal	60	45,360	30	F. Diehl & Sons, Wellesley
Evergreen Brand Dehyd. Alfalfa Leaf Meal	150	113,400	200	H. C. Puffer Co., Springfield
Evergreen Brand Dehyd. Alfalfa Meal	49	37,044	200	H. C. Puffer Co., Springfield
The Neumond Co., St. Louis, Mo.				
Neumond's 20% Dehyd. Alfalfa Leaf Meal	81	61,236	160	Frank Diauto, Randolph
Neumond's 17% Dehyd. Alfalfa Meal	96	72,576	30	J. L. Dunnell & Sons, Bernardston
Pecos Valley Alfalfa Mill Co., Chandler, Ariz.				
Pevee Alfalfa Leaf Meal	116	87,696	30	Borden Grain Co., Taunton
Pevee Alfalfa Leaf Meal	46	34,776	25	H. C. Puffer Co., Springfield
Velvet Brand Alfalfa Meal	63	47,268	100	H. K. Webster Co., Lawrence
Velvet Brand Alfalfa Meal	152	114,912	100	Stanley Wood Grain Co., Taunton
Velvet Brand Alfalfa Meal	12	9,072	30	H. C. Puffer Co., Springfield
Alfalfa Meal	30	22,680	40	H. C. Puffer Co., Springfield
Plantation Alfalfa Meal Co., East Prairie, Mo.				
20% Dehyd. Alfalfa Leaf Meal	79	59,724	40	D. Harbeck & Sons, New Bedford
Saunders Mills Inc., Toledo, Ohio				
Alfalfa Stem Meal No. 1	5	3,780	140	Farm Service Co., Lowell
Alfalfa Meal 13	8	6,048	70	Farm Service Co., Lowell
Dehyd. Leaf Meal-Carotene Brand Poultry Meal	36	27,216	200	C. P. Washburn Co., Middleboro
Velvet Brand Alfalfa Meal	21	15,876	70	Farm Service Co., Lowell
Carotene Brand Dehyd. Alfalfa Leaf Meal	94	71,064	140	Worcester Grain & Coal Co., Worcester
Carotene Brand Dehyd. Alfalfa Leaf Meal	70	52,920	200	C. P. Washburn Co., Middleboro
Velvet Brand Alfalfa Meal	22	16,632	40	F. Diehl & Son, Wellesley
Schoeneck Farms, Nazareth, Pa.				
Super-Green Dehyd. Alfalfa Meal	71	53,676	200	H. K. Webster Co., Lawrence
Super-Green Dehyd. Alfalfa Meal	38	28,728	15	E. A. Cowee Co., Fitchburg
Super-Green Dehyd. Alfalfa Meal	45	34,020	70	W. K. Gilmore & Sons, Walpole
Super-Green Dehyd. Alfalfa Meal	27	20,412	180	Stanley Wood Grain Co., Taunton
Super-Green Dehyd. Alfalfa Meal	45	34,020	300	George A. Fair, Holliston
W. J. Small Co., Inc., Neodesha, Kansas				
Fine Ground Dehyd. Alfalfa Leaf Meal	104	78,624	2	Community Feed Store, So. Deerfield
Sunny Slope Farms, Nazareth, Pa.				
Sunny Slope Farms Alfalfa Meal	45	34,020	40	Ryther & Warren, Belchertown
Sunny Slope Farms Alfalfa Meal	33	24,948	70	United Coop. Farmers, Inc. Fitchburg
Trexler Farms, Allentown, Pa.				
Buffalo Brand 17% Dehyd. Alfalfa Meal	102	77,112	2	J. H. Smith, Haverhill

*International Units per pound calculated from carotene content

RIBOFLAVIN CONTENT OF VARIOUS PRODUCTS

J. W. Kuzmeski

Riboflavin, a factor of vitamin G, is essential to growth. It is of especial importance in the diet of poultry. Until recently, dependence has been placed very largely upon milk products in securing adequate amounts of this important vitamin. With the growing scarcity of dried milk products, substitutes have been sought. Those which have received the greatest consideration are dried distillers solubles and concentrates made from them and other distillery residues.

In addition to tests with small animals there are two accepted methods for the determination of riboflavin: the microbiological and the fluorometric. For the results reported, the latter was adopted, using the Coleman spectrophotometer with attachments for fluorescence measurements. Where check tests were attempted with other laboratories, a considerable but not serious variation was found in some instances, possibly due to the fact that the methods are of comparatively recent origin and may contain imperfections which will be eliminated eventually. In the meantime more or less variation may be reasonably expected in the results reported by different laboratories. In general the apparent riboflavin content found by the fluorometric method is somewhat lower than that obtained microbiologically.

A comparatively low riboflavin content of a feed does not necessarily condemn it. In some products this is merely incidental and the product is primarily used for some other element or elements it may contain.

In order to present data not generally available, riboflavin tests are reported on a variety of products which are or might conceivably be used as sources of the vitamin. Where two or more samples were tested, the results are averaged unless the individual results were so utterly at variance as to make an average meaningless.

It is the intention to make a more extended survey particularly of those commercial mixtures for which a high riboflavin content is claimed.

Riboflavin Content of Various Products

Number of Samples	Name of Product	Manufacturer	Riboflavin Parts per Million or Micrograms per Gram
	Meat Products		
1	Corenco 55% Meat Scrap	Consolidated Rendering Co.	7.5
2	Corenco 50% Meat & Bone Scrap	Consolidated Rendering Co.	6.3
1	Corenco 45% Meat & Bone Scrap	Consolidated Rendering Co.	6.7
1	Eggaday Brand 50% Meat & Bone Scrap	Independent Tallow Co.	6.9
1	Morse's 60% Meat Scrap	James F. Morse & Co.	6.0
2	Morse's 50% Meat & Bone Scrap	James F. Morse & Co.	5.5
3	Morse's 45% Meat & Bone Scrap	James F. Morse & Co.	5.9
2	Register Brand Meat Scraps 60%	John Reardon & Sons	6.6
1	Register Brand Meat Scraps 50%	John Reardon & Sons	8.6
6	Register Brand Meat & Bone Scraps 45%	John Reardon & Sons	4.9
1	Rubco Meat Bone Scrap	H. M. Rubin Co.	4.8
1	Vico Meat & Bone Scrap	Van Iderstine Co.	4.8
1	Meat & Bone Scrap	Unidentified	5.6
	Animal Liver Meals		
1	Rearco Animal Liver Meal	John Reardon & Sons	53.2
1	Rearco Animal Liver Meal	John Reardon & Sons	50.6
1	Rearco Animal Liver Meal	John Reardon & Sons	33.7
1	Rearco Animal Liver Meal	John Reardon & Sons	28.1
1	Rearco Animal Liver Meal	John Reardon & Sons	27.2
1	Rearco Animal Liver Meal	John Reardon & Sons	19.8
1	Swift's Gromeal (A liver blend)	Swift & Co.	48.4
1	Liver Meal	Unidentified	30.9
	Distillers and Brewers Grains and Concentrates		
1	Corn Distillers Grains	Allied Mills	3.3
1	F Corn Distillers Grains	Ferneau Grain Co.	0.6
1	Neumond 28% Corn Distillers Grains	Neumond Co.	1.1
1	Seagram's Corn Distillers Grains	Joseph E. Seagram & Sons	0.8
1	Paco Riboflavin Supplement	Publicker Commercial Alcohol Co.	51.4
7	Produlac	National Distillers Co.	3.9
1	Brewers Dried Grains	Farmers Feed Co.	0.8
1	Budweiser Brewers Dried Grains	Anheuser-Busch, Inc.	0.4
1	Brewers Dried Grains	Allied Mills	0.5
1	Malt Sprouts	Unidentified	10.5
1	B-Y Concentrate	Commercial Solvents Corp.	102.4
1	Wheat Distillers Grains	Tioga Mill & Elevator Co.	4.4

Riboflavin Content of Various Products—Concluded

Number of Samples	Name of Product	Manufacturer	Riboflavin Parts per Million or Micrograms per Gram
	Fish Products		
1	Protine White Fish Meal	Dehydrating Process Co.	7.6
4	Gorton's Red Fish Meal	Gorton-Pew Fisheries Co., Ltd.	7.3
3	Maine Vitamin D Fish Meal	Maine Fish Meal Co.	6.4
2	Register White Fish Meal	John Reardon & Sons	11.8
1	Smith's Hi-Vita Menhaden Fish Meal	Smith Meal Co.	5.6
1	Phoenix Blended Fish Meal	Wilmington Packing Co.	6.2
1	Wilpaco White Fish Meal	Wilmington Packing Co.	9.0
1	Gorton's Cod Liver Meal Blend	Gorton-Pew Fisheries Co., Ltd.	31.6
1	Gorton's Cod Liver Meal Blend	Gorton-Pew Fisheries Co., Ltd.	29.4
1	Gorton's Cod Liver Meal Blend	Gorton-Pew Fisheries Co., Ltd.	11.6
	Milk Products		
1	Supreme Brand Dried Buttermilk	Herbert K. Clofine	30.7
1	Collis Dried Buttermilk	Ward Milk Products Div.	27.3
1	Buell-Boston Skimmilk Powder	B & B Dairy Co.	17.7
2	Burck-Brand Powdered Skimmilk	C. W. Burckhalter, Inc.	18.1
1	Skimmilk Powder	N. E. Dairies, Inc.	24.0
1	Skimmilk Powder	United Farmers Cooperative Creamery Association	20.6
2	Dried Whey	Ward Milk Products Div.	19.7
1	Kraco Dried Cheese Whey	Ward Milk Products Div.	23.1
1	Skimmilk Powder	Unidentified	19.4
1	Skimmilk Powder	Unidentified	21.6
	Alfalfa Products		
1	No. 1 Fine Ground Alfalfa Meal	A. B. Caple Co.	9.1
1	Keystone Super-Green Dehydrated Alfalfa Meal	Keystone Dehydrating Co.	16.6
1	Dehydrated Alfalfa Meal	Reelfoot Cooperative Assoc.	18.0
1	Dehydrated Alfalfa Poultry Meal	Saunders Mills, Inc.	16.1
2	Super Green Dehydrated Alfalfa Meal	Schoeneck Farms, Inc.	19.4
1	17% Dehydrated Alfalfa Meal	W. J. Small Co.	14.9
1	15% Dehydrated Alfalfa Meal	Trexler Farms	12.5
1	Sunshine Alfalfa Leaf Meal	Union Supply & Milling Corp.	20.8
10	Alfalfa Meals	Submitted by State Institutions	14.9
1	June Pasture (Alfalfa Meal & Beet Molasses)	Allied Mills	17.7
1	D & G Alfalfa & Molasses	Dietrich & Gambrill	7.5
1	Grandin's Green Feed (Alfalfa Base)	D. H. Grandin Milling Co.	17.4

Miscellaneous

4	Flaydry	Borden Co.	11.7
1	Dried Greens & Buttermilk	Cerophyl Laboratories	17.6
2	Cerogras	Cerophyl Laboratories	24.5
1	Flavonne	Dawes Products Co.	10.5
1	Egg-O-Milk Blend	Egg-O-Milk Co.	4.3

THE QUALITY INDEX OF MEAT AND FISH PRODUCTS

J. W. Kuzmeski and A. F. Spelman

The chemical method used in evaluating the quality of the protein in the animal and fish concentrates listed in this report was developed by H. J. Almquist, E. L. R. Stokstad and E. R. Holbrook at the University of California. Experiments conducted by these authors show that for animal and fish proteins the value obtained by these chemical methods agrees closely with that obtained from growth data of chick tests. The complete report of Dr. Almquist's work entitled "Supplementary Values of Animal Protein Concentrates in Chick Rations" appears in the Journal of Nutrition, Volume 10, July–December, 1935[1].

It may not be generally understood that in routine laboratory practice, analysis for total protein involves simply the determination of total nitrogen and the application of the factor 6.25 to the percentage of nitrogen present (Nitrogen $\times$ 6.25 = Protein). While the results may be approximately true as to protein content, it is known that proteins are complex substances differing somewhat in their nitrogen content and chemical make-up, depending upon the source from which they are derived and subsequent treatment. In fish and animal products used in feeding stuffs, a considerable portion of the nitrogen present may exist in combinations which are not true protein, but in such form that the nutritional value is either less than for true protein or at its worst negligible. The method of Dr. Almquist is an attempt to fix the true value of what is ordinarily considered as protein.

The method consists of separating the total protein present into several components which vary greatly in nutritive value. Since the terms used in designating the various fractions may not be easily understood by the layman, the following explanations are offered.

1. **Copper Precipitable Protein.** This measures mainly the amount of intact protein present, including the undigestible protein, the water soluble protein, and to some extent the protein of decomposition products. Therefore, estimation of undigestible and water soluble protein is necessary in order to determine the content of the water insoluble, digestible, copper precipitable protein which has the highest nutritive value.

2. **Phosphotungstic Acid Precipitable Protein.** This fraction consists mainly of peptones and amino acids present among the protein decomposition products and indicates the degree of decomposition.

3. **Undigestible Protein.** This measures mainly the protein derived from hoof, horn, hair, and protein material which has been converted from the digestible form by the use of high temperatures in cooking or drying. From a nutritional viewpoint this protein has very little value.

4. **Hot-Water Soluble Protein.** This is chiefly gelatin which is derived largely from bone, cartilage, connective tissue, and skin. The nutritive value of this fraction is comparatively low.

5. **Nitrogen in Non-Protein Combination.** This consists mainly of ammonia, amines, and urea, and includes all nitrogen not precipitated either by copper or phosphotungstic acid. This fraction has relatively little nutritive value.

By using the values obtained for the above fractions in a formula developed by Dr. Almquist, it was possible to calculate the quality index of each of the listed animal protein concentrates. It must be understood that the quality index does

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[1]In addition to the published article of Dr. Almquist, acknowledgment is also made to H. R. Bicknell, Chemist for the California State Department of Agriculture, for helpful correspondence.

not represent percentage of protein. It is simply a figure which shows the quality of the protein present, on a comparative basis.

From sources we believe to be reliable it is learned that a meat and bone scrap of excellent quality should have an index value of 70 to 75, one of good quality 65 to 70, and of average quality 60 to 65. A product with an index value of less than 55 may be considered low quality. Fish meal of highest grade may run as high as 80 to 87. Fish meal produced from market scrap may run as low as 58. It should be noted that considerable difference is found in products which carry the same name and brand. Doubtless if the history of each batch were known, ample reason could be found for this difference.

In his paper Dr. Almquist states: "It may be pointed out that the method of analysis employed provides strong evidence of the condition and type of raw materials and of the effect of the manufacturing process on the quality of the product. Decomposition caused by putrefaction, autolysis or poor methods of manufacture is reflected in a decrease of the copper-precipitable fraction and an increase in the phosphotungstic-acid-precipitable fraction. The inclusion of undigestible nitrogenous substances and the effect of excessive temperatures introduce an unduly large undigestible fraction. An increase in the cartilage, connective tissue, skin and bone content causes a corresponding increase in the hot-water-soluble protein nitrogen. The same is true when the 'stick' is included in the final product. Finally, the presence of much nitrogen in the form of ammonia, amines, urea and similar types of non-protein nitrogen causes a wide discrepancy to appear between the summation of the nitrogen accounted for by the copper and phosphotungstic acid treatments and the total nitrogen. It should also be pointed out that the analytical scheme which was employed does not detect the presence of toxic substances."

There is nothing particularly disturbing in the results obtained. While considerable variation is found, with few exceptions the material examined equals or exceeds accepted standards of protein quality. However, with prospective shortages of meat and fish products, considerable vigilance should be exercised in the selection of such products by manufacturers of mixed feeds.

Protein Quality Index of Meat and Fish Products

Description	Total Protein Percent	Percentage of Total Protein as					Protein Quality Index
		Copper Precipitate	Undigestible	Hot Water Soluble	Phosphotungstic Acid Precipitate	Non-Protein	
Fish and Fish Products							
Corenco Cod and Haddock Meal..	67.78	79.33	9.65	20.42	9.56	11.11	61.25
Gorton's Redfish Meal.....	55.78	92.79	9.29	10.83	1.09	6.11	77.44
Gorton's Redfish Meal.....	57.85	90.64	6.82	8.72	1.83	7.53	79.31
Gorton's Redfish Meal.....	58.23	90.83	4.74	6.82	1.73	7.44	82.69
Gorton's Redfish Meal.....	56.30	87.10	22.31	7.78	4.90	8.00	62.08
Gorton's Redfish Meal.....	57.01	91.55	10.70	8.26	1.68	6.77	76.56
Gorton's Cod Liver Meal Blend...	52.58	88.75	37.28	5.84	1.67	9.58	48.64
Gorton's Cod Liver Meal Blend...	49.13	90.17	25.91	5.54	2.24	7.59	61.84
Gorton's Cod Liver Meal Blend...	51.80	91.95	28.71	4.83	1.53	6.52	60.95
Maine Vitamin D Fish Meal	54.38	87.59	7.91	11.20	1.62	10.79	73.51
Maine Vitamin D Fish Meal	55.39	82.51	7.02	11.70	2.37	15.12	69.42
Maine Vitamin D Fish Meal	56.26	85.28	3.16	11.52	1.96	12.76	75.99
Phoenix Blended Fish Meal.....	58.23	77.67	9.98	16.95	7.61	14.72	60.56
Protine White Fish Meal.....	62.22	87.34	5.54	19.82	4.64	8.02	71.89
Register White Fish Meal.....	62.21	81.58	7.94	22.73	8.31	10.11	63.32
Register White Fish Meal.....	62.69	81.43	5.54	19.32	7.90	10.67	67.46
Smith's Menhaden Fish Meal.....	65.61	91.05	13.96	8.02	0.53	8.41	72.94
Smith's Menhaden Fish Meal.....	64.27	92.38	13.97	5.09	1.23	6.39	75.85
Wilpaco White Fish Meal.....	66.11	82.92	6.44	25.26	6.29	10.78	63.84
Wilpaco White Fish Meal.....	68.44	80.93	7.28	26.39	12.29	6.78	62.74
Fish Meal, Source Unidentified ...	57.71	81.25	5.15	19.88	7.36	11.39	67.11
Fish Meal, Source Unidentified ...	55.43	86.88	5.23	10.19	1.27	11.85	76.05
Fish Meal, Source Unidentified ...	56.97	80.22	6.21	10.76	1.07	18.71	67.98
Fish Meal, Source Unidentified ...	54.73	84.23	6.07	9.90	1.75	13.52	72.92

Meat Products							
Corenco Meat and Bone Scrap	51.75	86.28	8.85	15.15	6.26	7.46	70.84
Corenco Meat and Bone Scrap	46.10	82.73	8.24	16.68	7.03	10.24	67.30
Corenco Meat and Bone Scrap	56.74	86.89	12.69	13.36	3.08	10.03	67.41
Corenco Meat and Bone Scrap	49.48	87.59	8.53	17.78	3.54	8.87	69.81
Eggaday Brand Meat Scrap	53.11	86.48	8.62	18.96	2.47	11.05	67.47
Eggaday Brand Meat Scrap	49.56	87.73	11.96	15.60	5.13	7.14	68.56
Morse's Meat Scraps	60.07	84.33	10.99	15.71	5.09	10.57	65.95
Morse's Meat Scraps	52.01	80.68	9.48	21.81	8.25	11.07	61.41
Morse's Meat Scraps	45.53	87.24	13.18	16.41	3.38	9.38	65.56
Morse's Meat Scraps	47.28	86.48	7.57	18.44	5.92	7.60	70.32
Morse's Meat Scraps	50.53	86.13	9.13	18.29	7.80	6.07	69.15
Morse's Meat Scraps	60.90	86.85	9.93	17.80	4.17	8.98	67.91
Morse's Meat Scraps	46.49	84.00	7.61	19.21	5.46	10.54	67.04
Morse's Meat Scraps	52.15	78.93	9.89	22.28	6.39	14.68	57.63
Morse's Meat Scraps	45.27	85.60	10.18	19.06	4.26	10.14	65.68
Rearco Animal Liver Meal	69.79	85.94	11.58	12.90	1.50	12.55	67.22
Rearco Animal Liver Meal	68.22	85.43	7.94	10.89	2.57	12.00	72.04
Rearco Animal Liver Meal	69.82	84.72	11.11	11.36	4.88	10.40	68.74
Rearco Animal Liver Meal	72.41	91.06	12.62	8.71	3.63	5.31	74.66
Rearco Animal Liver Meal	67.44	90.63	10.19	10.10	1.30	8.10	74.90
Rearco Animal Liver Meal	66.21	88.94	13.52	10.45	1.86	9.20	69.89
Rearco Animal Liver Meal	69.01	84.25	9.00	12.32	3.93	11.82	69.43
Register Meat Scrap	56.56	77.79	10.31	9.55	8.52	13.68	65.15
Register Meat Scrap	47.06	85.32	10.58	19.12	6.50	8.18	65.87
Register Meat Scrap	45.66	85.52	11.48	17.61	4.99	9.49	66.47
Register Meat Scrap	47.80	87.85	10.42	15.02	4.94	7.21	70.40
Register Meat Scrap	46.98	88.42	10.34	15.71	6.26	5.32	71.16
Register Meat Scrap	57.36	80.37	11.43	17.86	6.35	13.28	60.85
Register Meat Scrap	43.34	86.39	11.40	15.27	6.78	6.83	68.60
Register Meat Scrap	49.91	85.09	11.82	14.75	3.69	11.22	65.90
Register Meat Scrap	48.16	84.74	9.70	15.88	3.63	11.63	66.96
Register Meat Scrap	61.73	82.07	8.21	20.64	9.59	8.34	55.32
Rubco Meat and Bone Scrap	61.60	85.29	8.64	18.57	7.40	7.31	68.47
Rubco Meat and Bone Scrap	54.24	84.53	9.45	20.13	3.83	11.64	64.53
Rubco Meat and Bone Scrap	51.23	82.72	8.33	19.40	7.26	10.02	65.65
Rubco Meat and Bone Scrap	52.45	82.40	8.16	19.75	6.50	11.10	64.99
Swift's Gromeal	66.94	80.19	17.66	13.74	6.14	13.67	56.75
Vico Meat and Bone Scrap	50.61	85.81	9.76	19.60	6.92	7.27	67.06

MANGANESE IN COMMERCIAL POULTRY AND CHICK RATIONS

H. Robert DeRose

It has become a general practice to add manganese to commercial mashes as a preventive of perosis (bone trouble) in growing chicks and to improve shell texture and maintain weight in adult birds. A normal ration that does not have an excess of corn will usually contain between 40 and 50 parts per million of manganese. It is not within the province of regulatory officials to fix the levels at which manganese should be present in a ration. This is a function of the poultry nutritionist, and even among experts there appears to be some disagreement as to levels below which the manganese content should not fall. Rather, it is the duty of control officials to present analytical data as found; the interpretation and application of such data to lie with the poultryman and nutritionist.

Over three hundred samples of commercial mashes were tested for manganese content. In most of them added manganese was declared. However, there seemed to be no uniformity of declaration. In some instances where manganese was declared, it does not seem possible that the quantity found was any greater than should have been present in the natural ingredients used. In other instances where a declaration of added manganese was lacking, it does not seem possible that the amount found could have been obtained from natural ingredients.

The extremely small amount used must present mixing problems which can be partially obviated by first mixing the manganese with calcium carbonate or oyster shell meal before introducing it into the feed mixture.

Of the several manganese salts used, anhydrous manganese sulfate predominated, although the carbonate and dioxide were also used in a few cases. The relative merits of these several salts is not known. Where a declaration of quantitative content is made, it should be in terms of the element alone and not as the sulfate or other salt used. The intent of the manufacturer on this point is not always clear.

Especial reference is made to an article entitled "Studies in Mineral Nutrition of Laying Hens. I. The Manganese Requirement," by Gutowska and Parkhurst, found in Poultry Science XXI, No. 3, May 1942.

Manganese Content of Various Poultry and Chick Rations

Manufacturer and Brand	Manganese (Mn) Parts per Million
Allied Mills, Inc.	
Economy Laying Mash	46
Wayne Breeder Mash	188
Wayne Chick and Broiler Ration	84
Wayne Chick Starter	150
Wayne Egg Mash	172
Wayne Flushing Mash	116
Wayne Growing Mash	138
Wayne Laying Mash	160
Wayne Supplement Mash	350
Wayne Poultry Developer	172
Wayne Turkey Growing Mash	188
A. P. Ames & Co.	
Ames Complete Cycle Ration	74
Ames Egg Mash	75
Ames Starter and Broiler Ration	66
Arcady Farms Milling Co.	
Arcady Complete Chick Starter	63
Arcady Growing Mash	89
Arcady Laying Mash	92
Arcady Turkey Growing Mash	81
E. W. Bailey & Co.	
Bailey's Pennant Complete Layer	88
Bailey's Pennant Laying Mash	82
Bailey's Pennant Laying Pellets	88
Bailey's Pennant Turkey Fattener	41
Barber & Bennett, Inc.	
Fort Orange Growing Mash	67
Fort Orange Laying Mash	83
Beacon Milling Co., Inc.	
Beacon Battery Growing Ration	149
Beacon Battery Laying Ration	104
Beacon Breeders Mash	242
Beacon Broiler Feed	70
Beacon C-C Pellets	41
Beacon Complete Starting Ration	70
Beacon Duck Fattener	63
Beacon Duck Grower Pellets	99
Beacon Fleshing Pellets	91
Beacon "16" Growing Mash	147
Beacon "20" Laying Mash	138
Beacon Turkey Growing Feed	96
Berkshire Coal & Grain Co., Inc.	
Green Mountain Laying Mash	39
"Gro Fast" All Mash Complete Starter and Broiler	32
Borden Grain Co.	
Borden's Laying Mash	118
Borden's Starter and Growing Feed	66
George B. Brown Corp.	
Brown's Egg Mash	68
Community Feed Stores	
Community Chick Mash	88
Community Growing Mash	78
Community Laying Mash	94
Nicolas Courcy Grain Co.	
Courcy's Eastern Milk Laying Mash	88

Manganese Content of Various Poultry and Chick Rations—Continued

Manufacturer and Brand	Manganese (Mn) Parts per Million
Chas. M. Cox Co.	
Utility Growing Ration	75
Utility Laying Ration	88
Wirthmore Baby Chick Starter	103
Wirthmore Breeder Mash	108
Wirthmore Complete Breeder Ration	98
Wirthmore Complete Breeder Ration	89
Wirthmore Complete Chick Starter & Broiler	90
Wirthmore Complete Egg Ration	90
Wirthmore Complete Egg Ration	91
Wirthmore Complete Growing Ration	100
Wirthmore Finishing Pellets	52
Wirthmore Fleshing and Fattening Pellets	36
Wirthmore Growing Mash	53
Wirthmore Laying Mash	88
Wirthmore Poultry Flush	50
Wirthmore Poultry Flush	47
Wirthmore Special Broiler Feed	82
Wirthmore Special Broiler Feed	94
Wirthmore Special Egg Mash	106
Wirthmore Super Pellets	45
Wirthmore Turkey Breeder Ration	114
Wirthmore Turkey Fattening Ration	88
Wirthmore Turkey Growing Ration	94
Wirthmore Turkey Starting Mash	100
Dailey Mills, Inc.	
Dailey's All Mash Breeder-Producer	64
Dailey's Egg Producer Mash	66
Dailey's Starter-Broiler Mash	62
Dailey's Super Hatch Producer	92
Dailey's Super Laying Mash	72
Delaware Mills, Inc.	
Delaware Egg Mash	100
Delaware Grow Mash	80
Delaware 19% Laying Mash	82
Frank Diauto	
Diauto's Fancy Chick Growing Mash	63
Diauto's Special Egg Mash	57
Dietrich & Cambrill, Inc.	
D & G Broiler Mash	79
Gambrill's Growing Mash	93
Gambrill's Laying Mash	90
J. L. Dunnell & Son	
Excel Mash	42
East Bridgewater Farmers' Exchange, Inc.	
Exchange Growing Feed	52
Exchange Mash Feed	51
Eastern States Farmers' Exchange	
All Mash Egg	84
Developer	83
Egg Mash	164
Finishing Mash	56
Flushing Mash	43
Starting and Broiler Ration	76
Turkey Breeder Mash	78
Turkey Fat Mash	56
Turkey Grow Mash	88
Turkey Start	106
M. W. Ellis	
Ellis Poultry Mash	58
Ellis Poultry Mash	74
Elmore Milling Co., Inc.	
Elmore Chixsaver	176
Elmore Complete Layer & Breeder	64
Elmore Complete Starter & Broiler	78
Elmore Egg Mash	120
Elmore Growing Mash	170
Elmore M. A. C. Laying Mash	94
Elmore Turkey Growing Mash	120
Elmore Turkey Starting Mash	54

Manganese Content of Various Poultry and Chick Rations—Continued

Manufacturer and Brand	Manganese (Mn) Parts per Million
John W. Eshelman & Sons	
Eshelman Red Rose Growing Mash	251
Eshelman Red Rose Laying Mash	83
Essex County Cooperative Farming Assn.	
S-X All Mash Egg	94
S-X All Mash Growing	74
S-X Egg Mash	112
S-X Growing Mash	85
S-X Starter and Broiler	75
George A. Fair	
Fair Square Growing Mash	106
Fair Square Laying Mash	105
Flory Milling Co., Inc.	
Flor-Eta Complete Laying Mash	148
Flor-Eta Complete Starter and Grower	124
Flory Broiler Mash	110
Flory 18% Growing Mash	182
Flory Health-Tonic	48
Flory Starter Mash	126
Golden Egg Grower Mash	146
Golden Egg Laying Mash	174
Golden Egg Starter and Broiler	122
Sunray Laying Mash	200
Fred A. Fountain, Inc.	
Fountain's Breeder Mash	100
Fountain's Growing Mash	111
Fountain's Laying Mash	110
Fountain's Starting and Broiler Ration	108
Paul Fuller & Sons	
Eggmaker	84
J. B. Garland & Son, Inc.	
Royal Laying Mash	110
General Mills, Inc., Farm Serivce Division	
Farm Service All Mash Growing	46
Farm Service Chick Starter	72
Farm Service Laying Mash	69
Service Mash	46
Goode Grain Co.	
Goode Laying Mash Mass. Formula	184
Goode Starting and Growing Mash	174
Grand Union Co.	
Grand Union Laying Mash	119
D. H. Grandin Milling Co.	
Grandin's Breeder Mash	94
Grandin's Chick Starting Mash	80
Grandin's Complete Grower Ration	78
Grandin's Complete Starter and Broiler	84
Grandin's Fleshing Pellets	92
Grandin's Growing Mash	96
Grandin's Hi Pro Pellets	122
Grandin's Market Egg Mash	102
Grandin's Start-To-Finsih Mash	98
Money Saver Broiler Mash	132
Money Saver Egg Mash	110
Money Saver Growing Mash	130
Grandin's Turkey Grower	108
Great Atlantic & Pacific Tea Co.	
Daily Egg Mash	68
Daily Growth Chick Starter	87
Daily Growth Growing Mash	71
Great River Milling Co.	
Grimco Complete Starter Broiler	70
Grimco Growing Mash	86
Grimco Laying Mash	138

Manganese Content of Various Poultry and Chick Rations—Continued

Manufacturer and Brand	Manganese (Mn) Parts per Million
Hales & Hunter Co.	
Red Comb All-Mash	64
Red Comb Balancer	80
Red Comb Batry Fed Layer	50
Red Comb Broiler Mash	86
Red Comb Chick Starter	88
Red Comb Crate Fattener	31
Red Comb Egg Mash	88
Red Comb Flushing Mash	51
Red Comb Sup-Pel	34
D. Harbeck & Sons	
Crusader All Purpose Mash	37
Special 1941 Mash	42
Welcome Growing Mash	68
Welcome Laying Mash	37
Welcome Starter and Broiler	140
Welcome Turkey Growing Mash	44
Welcome Turkey Starter	48
D. B. Hodgkins' Sons	
Hodgkins Growing Mash	77
Hodgkins Poultry Mash	63
Horvitz Feed Co.	
Mak-M-Lay Laying Mash	45
Kasco Mills, Inc.	
Apex Complete Grower	69
Apex Growing Mash	68
Apex Starter	60
Kasco Laying and Breeding Mash	90
Kasco Poultry Flushing Mash	64
Kasco Turkey Grower	53
Mansfield Coal & Grain Co.	
Manco Growing Mash	42
Manco Laying Mash	46
Mansfield Milling Co.	
Mansfield Chick Growing Mash	60
Mansfield Chick Starter	92
Mansfield Dry Poultry Mash	68
Merrimack Farmers' Exchange, Inc.	
Merrimack All Mash	58
Merrimack Chick Starter	85
Merrimack Growing Mash	145
Merrimack Laying Mash	104
Merrimack Special Mash	96
Merrimack Super Mash	91
Middlesex County Farm Bureau Assn.	
Farm Bureau All Mash Developer	63
Farm Bureau All Mash Laying	78
Farm Bureau Battery Mash	161
Farm Bureau Breeder & Laying Mash	108
Farm Bureau Developer	64
Farm Bureau Laying Mash 17%	90
Farm Bureau Complete Laying Mash	75
Farm Bureau Conditioner	52
Farm Bureau Flushing Mash	88
Farm Bureau Laying Mash (no milk)	127
Farm Bureau Starter and Broiler	93
Farm Bureau Turkey Breeder Mash	84
Farm Bureau Turkey Growing Ration	92
Farm Bureau Turkey Starter	75
Geo. Q. Moon & Co., Inc.	
Crescent Laying Mash	53
Complete Starter and Broiler	46
Moon's Complete Laying Mash	63
New England Grain Co.	
New England Starter and Broiler	60
New England Sterling Laying Mash	50
New England Sterling Starting and Growing	54

Manganese Content of Various Poultry and Chick Rations—Continued

Manufacturer and Brand	Manganese (Mn) Parts per Million
New England Retail Grain Dealers Coop. Assn.	
New England Quality Chick Starter	47
New England Quality Starter Broiler Ration	169
New England Yankee Egg Mash	108
New England Yankee Growing Mash	114
Ogden Grain Co.	
"Biddy" Laying Mash	106
"Biddy" Laying Mash	104
Pilgrim All Purpose Complete Ration	87
Pilgrim Flush Conditioner	98
Pilgrim Growing Mash	90
Pilgrim Laying Mash	104
Pilgrim Starter and Broiler Ration	81
Thrift Growing Mash	46
Thrift Growing Mash	81
Thrift Starter and Broiler Ration	55
Thrift Starter and Broiler Ration	57
Palm Grain Co.	
Perfection Growing Mash	88
Perfection Laying Mash	80
Perfection Starter and Broiler	100
Park & Pollard Co.	
Bidwell Growing Feed	55
Bidwell Laying Mash	46
Lay or Bust Dry Mash	50
Manamar Life Cycle Mash	63
Park & Pollard All-Mash Growing Feed	54
Park & Pollard Breeder Mash	55
Park & Pollard Growing Feed	32
Park & Pollard Starter Pellets	81
Park & Pollard Starter and Broiler Mash	59
Park & Pollard Turkey Grower	63
Park & Pollard Turkey Starter	48
George H. Parker Grain Co.	
Parker's Egg Mash	143
Parker's Growing Mash	82
Parker's Starter and Broiler Ration	55
H. C. Puffer Co.	
Egg-Em-On Complete Egg Mash	138
Egg-Em-On Growing Feed	96
Egg-Em-On Laying Mash	96
Egg-Em-On Starter and Broiler	83
Quaker Oats Co.	
Big Egg Laying Mash	76
Big Egg Laying Mash	69
Ful-O-Pep Broiler	58
Ful-O-Pep Egg Breeder Mash	55
Ful-O-Pep Growing Mash	54
Ful-O-Pep Turkey Grower	68
Ralston Purina Co.	
Purina Chick Growena	79
Purina Chick Startena	58
Purina Chick Startena	68
Purina Lay Chow	159
Purina Turkey & Chicken Fatena	67
Purina Turkey Growena	83
Purina Turkey Growena	103
Purina Turkey Startena	105
D. F. Riley	
Riley's Growing Mash	33
Riley's Laying Mash	40
Roy Grain Co.	
Roy's Hen Mash	84
Roy's Chick Starter and Grower	82
Ryther & Warren Co.	
Minot Chick Mash	112
Minot Growing Mash	120
Minot Egg Mash	114

Manganese Content of Various Poultry and Chick Rations—Concluded

Manufacturer and Brand	Manganese (Mn) Parts per Million
Smith-Bodfish-Swift Co.	
Paramount Complete Mash	51
Tioga Mills, Inc.	
Tasty Laying Food	147
Ti-O-Ga Starter and Grower	128
Jacob Trinley & Sons	
Limerick Laying Mash	57
Limerick Laying Mash	56
United Cooperative Farmers, Inc.	
Breeder Mash	103
Egg Mash	116
Grower	99
Layer	99
Special Starter-Broiler	122
Starter	100
Unity Feeds, Inc.	
Paycheck Laying Mash	54
Unity Growing Mash	48
Arthur Ventura Grain Co.	
Ventura Grower	108
Ventura Laying Mash	110
Ventura Starter	92
C. P. Washburn Co.	
"Made-Right" Complete Broiler Ration	80
"Made-Right" Complete Layer	42
"Made-Right" Dry Mash	74
"Made-Right"Starting and Growing Feed	90
H. K. Webster Co.	
Blue Seal All Mash Growing Ration	69
Blue Seal Breeders All Mash Ration	86
Blue Seal Breeders Laying Mash	89
Blue Seal Breeders Mash	87
Blue Seal Broiler Ration	52
Blue Seal Chick Starter	72
Blue Seal Egg Mash	98
Blue Seal Fleshing Pellets	49
Blue Seal Growing Mash	63
Blue Seal Turkey Growing	56
Blue Seal Turkey Starter	167
Est. M. G. Williams	
Williams Growing Mash	118
Williams Laying Mash	154
Stanley Wood Grain Co.	
Preferred Complete Growing Ration	76
Preferred Complete Laying Ration	84
Preferred Growing Feed	112
Preferred Laying Mash	122
Preferred Starting Feed	85
Yantic Grain & Products Co.	
Big Y Complete Chick Starter & Broiler	50
Big Y 20 Milk and Oil Laying Mash	83
Big Y Milk and Oil Growing Feed	120

Directory of Manufacturers Who Registered Feeding Stuffs for Sale in Massachusetts in 1942

Acme Evans Co., Indianapolis, Ind.
Albers Milling Co., Seattle, Wash.
Allied Mills, Inc., Chicago, Ill.
American Maize-Products Co., 100 East 42nd St., New York N. Y.,
A. P. Ames & Co., 10 Walnut St., Peabody, Mass.
Arcady Farms Milling Co., 223 West Jackson Blvd., Chicago, Ill.
Archer-Daniels-Midland Co., Minneapolis, Minn.
Ashcraft-Wilkinson Co., Atlanta, Ga. (Registered also for Rio Grande Valley Citrus Exchange)
W. E. Atkinson Co., 27 Water St., Newburyport, Mass.
E. R. Bacon Grain Co., Chicago, Ill.
B. & B. Dairy Co., Inc., Margaretville, N. Y.
E. W. Bailey & Co., Montpelier, Vt.
Barber & Bennett, Inc., Albany, N. Y.
Bay State Milling Co., Winona, Minn.
Beacon Milling Co., Inc., Cayuga, N. Y.
Berkshire Coal & Grain Co., Inc., North Adams, Mass.
Bisbee Linseed Co., Inc., Amsterdam, N. Y.
Blatchford Calf Meal Co., Waukegan, Ill.
Blatchley & Ballard, Inc., Middletown, Conn.
Borden Co., 350 Madison Ave., New York, N. Y.
Borden Grain Co., West Water St., Taunton, Mass.
A. H. Brown & Bros., Boston, Mass. (Registered by Mellin's Food Company of North America)
George B. Brown Corporation, Ipswich, Mass.
Buckeye Cotton Oil Co., Cincinnati, Ohio
C. W. Burckhalter, Inc., 156 Franklin St., New York, N. Y.
A. B. Caple Co., Toledo, Ohio
Center Milk Products Co., Middlebury Center, Penn. (Registered also for Vita-Lac Co.)
Central Soya Co., Inc., 300 Old-First Bank Bldg., Fort Wayne, Ind. (Registered also for Central Sugar Co., Inc.)
Central Sugar Co., Inc., Decatur, Ind. (Registered by Central Soya Co., Inc.)
Cerophyl Laboratories, Inc., 2438 Broadway, Kansas City, Mo.
Clinton Co., Clinton, Iowa
Commander-Larabee Milling Co., Minneapolis, Minn.
Commercial Milling Co., 323 East Atwater St., Detroit, Mich.
Community Feed Stores, East Longmeadow, Mass.
Community Service, Inc., Canaan, Conn.
Consolidated Rendering Co., 178 Atlantic Ave., Boston, Mass.
Continental Distilling Corp., 1800 West Lehigh Ave., Philadelphia, Penn.
Corn Products Sales Co., 17 Battery Place, New York, N. Y.
Courcy Grain Co., 12 Waverly St., Taunton, Mass.
Cover Grain & Feed Co., 150 Middle St., Lowell, Mass.
Chas. M. Cox. Co., 177 Milk St., Boston, Mass. (Registered also for Taft Bros.)
Dailey Mills, Inc., Binghamton, N. Y.
Dairymen's League Co-Operative Association, Inc., 11 West 42nd St., New York, N. Y.
Dawe's Products Co., 4800 South Richmond St., Chicago, Ill.
Decatur Milling Co., Inc., Decatur, Ill.
Decatur Soy Products Co., Decatur, Ill.
Dehydrating Process Co., 60 Mt. Washington Ave., Boston, Mass.
Delaware Mills, Inc., Deposit, N. Y.
Denver Alfalfa Milling & Products Co., Lamar, Col.
Deutsch & Sickert Co., Milwaukee, Wis.
Frank Diauto, 87 Warren St., Randolph, Mass.
F. Diehl & Son, Inc., Wellesley, Mass.
Dietrich & Gambrill, Inc., Frederick, Md.
Drackett Products Co., 5020 Spring Grove Ave., Cincinnati, Ohio
Dreyer Commission Co., 300 Merchants Exchange Bldg., St. Louis, Mo.
Eagle Roller Mill Co., New Ulm, Minn.
East Bridgewater Farmers' Exchange, Inc., East Bridgewater, Mass.
Eastern Grain Co., Bridgewater, Mass.
Eastern Semolina Mills, Inc., Baldwinsville, N. Y.
Eastern States Farmers' Exchange, Box 1482, Springfield, Mass.
B. A. Eckhart Milling Co., 1300 Carroll Ave., Chicago, Ill.
Economy Grocery Stores Corporation, 393 D Street, South Boston, Mass.
Egg-O-Milk Co., Baltimore, Md.
M. W. Ellis Estate, 19 Walnut St., Peabody, Mass.
Elmore Milling Co., Inc., Oneonta, N. Y.
John W. Eshelman & Sons, Lancaster, Penn.
Essex County Cooperative Farming Association, Topsfield, Mass.
Evans Milling Co., Indianapolis, Ind.
Excelsior Milling Co., Minneapolis, Minn.
George A. Fair, Holliston, Mass.
Farmers Feed Co., 532 East 76th St., New York, N. Y.
Federal Mill, Inc., Lockport, N. Y.
Feed Associates, Slingerlands, N. Y.
Ferneau Grain Co., Blanchester, Ohio
Finger Lakes & Hudson Flour Mills, Inc., 7-9 Madison Street, Troy, N. Y.
Finger Lakes and Hudson Flour Mills, Inc., Geneva, N. Y.
First National Stores, Inc., 5 Middlesex Ave., Somerville, Mass.
Flory Milling Co., Inc., Bangor, Penn.
Ford Motor Co., 3000 Schaefer Road, Dearborn, Mich.
Fred A. Fountain, Inc., Taunton, Mass.
Dean S. French, 17 Columbia St., Stoughton, Mass.
Fruen Milling Co., Minneapolis, Minn.
Paul Fuller & Sons, Salem, Mass.
Funk Bros. Seed Co., Bloomington, Ill.
J. B. Garland & Son, Inc., Worcester, Mass.
General Foods Corporation, Corn Mill Division, Kankakee, Ill.
General Foods Corporation, Post Products Division, Battle Creek, Mich.

General Mills, Inc., Minneapolis, Minn.
General Mills, Inc., Farm Service Division, Fitchburg, Mass.
W. K. Gilmore & Sons, Inc., Walpole, Mass.
Glidden Co., Soya Products Division, 5165 West Moffat St., Chicago., Ill.
Gloucester Dehydrating Process Co., Gloucester, Mass.
Golden Eagle Milling Co., Petaluma, Cal. (Registered by Western Condensing Co.)
Goode Grain Co., 452 Broadway, Lowell, Mass.
Gorton-Pew Fisheries Co., Ltd., 327 Main St., Gloucester, Mass.
Grand Isle County Co-Operative Creamery Association, Grand Isle, Vt.
Grand Union Co., 50 Church St., New York, N. Y.
D. H. Grandin Milling Co., Jamestown, N. Y.
Great Atlantic & Pacific Tea Co., New York, N. Y.
Great Eastern Feed Mills, Phoenix Ave., Lowell, Mass.
Great River Milling Co., Westfield, Mass.
Green Acre Farms, Nazareth, Penn.
Hales & Hunter Co., 166 West Jackson Blvd., Chicago, Ill.
Wm. Hamilton & Son, Inc., Caledonia, N. Y.
D. Harbeck & Sons, New Bedford, Mass.
Hecker Products Corporation, Flour and Cereal Division, 50 Marvin St., Buffalo, N. Y.
Hercules Powder Co., Dairy Products Division, 332 South Michigan Ave., Chicago, Ill.
D. B. Hodgkins' Sons, Gloucester, Mass.
Hoosier Soybean Mills, Inc., Marion, Ind.
Horton Grain Co., 23 Brown Square, Ipswich, Mass.
Horvitz Feed Co., New Bedford, Mass.
Hubinger Co., Keokuk, Iowa
Humphreys-Godwin Co., Memphis, Tenn.
Illinois Cereal Mills, Inc., Paris, Ill.
J. F. Imbs Milling Co., Belleville, Ill.
Independent Tallow Co., Inc., 39 Cedar St., Woburn, Mass.
International Milling Co., Minneapolis, Minn.
Ismert Hincke Milling Co., Kansas City, Mo.
Jaquith & Co., 305 Main St., Woburn, Mass.
Kansas Flour Mills Co., Kansas City, Mo.
Kasco Mills, Inc., Waverly, N. Y.
Kellogg Co., Battle Creek, Mich.
Spencer Kellogg & Sons, Inc., 98 Delaware Ave., Buffalo, N. Y.
H. H. King Flour Mills Co., Minneapolis, Minn.
King Midas Flour Mills, 500 Flour Exchange, Minneapolis, Minn.
Kraft Cheese Co., Ward Milk Products Division, 500 Peshtigo Ct., Chicago, Ill.
Chas. A. Krause Milling Co., Milwaukee, Wis.
Kuiper & Bolle, 508 Produce Exchange, New York, N. Y.
Lake of the Woods Milling Co., Ltd., Montreal, Que., Canada
John T. Lampman & Co., Claverack, N. Y.
Larabee Flour Mills Co., Kansas City, Mo.
Larrowe Milling Company (Trade Name) of General Mills, Inc., Detroit, Mich.
Le Roy Alfalfa Corporation, Church St., Le Roy, N. Y.
L. B. Lovitt & Co., Memphis, Tenn.
A. S. MacDonald Commission Co., 404 Grain & Flour Exchange, Boston, Mass. (Registered for Parrish & Heimbecker, Ltd.)
Maine Fish Meal Co., Portland, Maine.
Mansfield Coal & Grain Co., Mansfield, Mass.
Mansfield Milling Co., 1 Samoset Ave., Mansfield, Mass.
Maritime Milling Co., Inc., Buffalo, N. Y.
Meadow Brook Farms, Nazareth, Penn.
Mellin's Food Company of North America, 41 Central Wharf, Boston, Mass. (Registered for A. H. Brown & Bros., Sole Agents)
Merrimack Farmers' Exchange, Inc., Concord, N. H.
Middlesex County Farm Bureau Association, 155 Lexington St., Waltham, Mass.
Miner-Hillard Milling Co., Wilkes-Barre, Penn.
Geo. Q. Moon & Co., Inc., Binghamton, N. Y.
Jas. F. Morse & Co., 11 Horace St., Somerville, Mass.
Muir & Co., 408 Produce Exchange, New York, N. Y.
National Biscuit Co., Shredded Wheat Bakeries, Niagara Falls, N. Y.
National Distilleries Products Corporation, 120 Broadway, New York, N. Y.
National Foods, 4101 East Monument St., Baltimore City, Md.
National Lead Co., 111 Broadway, New York, N. Y.
National Milling Branch of National Biscuit Co., Toledo, Ohio
Neumond Co., 309 Merchants Exchange, St. Louis, Mo.
New England Dairies, Inc., Charlestown, Mass.
New England Grain Co., 390 Commercial St., Portland, Maine
New England Rendering Co., Brighton, Mass.
New England Retail Grain Dealers Cooperative Association, Inc., Springfield, Mass.
Ogden Grain Co., Utica, N. Y.
Ogilvie Flour Mills Co., Ltd., Montreal, Que., Canada
Oswego Soy Products Corp., Oswego, N. Y.
Pabst Brewing Co., 917 West Juneau Ave., Milwaukee, Wis.
Palm Grain Co., Lowell, Mass.
Park & Pollard Co., 356 Hertel Ave., Buffalo, N. Y.
George H. Parker Grain Co., 56 Water St., Danvers, Mass.
Parrish & Heimbecker, Ltd., Toronto, Ont., Canada (Registered by A. S. MacDonald Commission Co.)
Patent Cereals Co., Geneva, N. Y.
Perkins Oil Co., Memphis, Tenn.
Pillsbury Flour Mills Co., Minneapolis, Minn.
Pittsburgh Plate Glass Co., Linseed Oil Division, 2-10 Chester Ave., Newark, N. J.
W. N. Potter Grain Stores, Inc., Greenfield, Mass.
Pratt Food Co., Inc., 69 Leddy St., Buffalo, N. Y.
H. C. Puffer Co., Springfield, Mass.
Quaker Oats Co., 141 West Jackson Blvd., Chicago, Ill.
Ralston Purina Co., St. Louis, Mo.

John Reardon & Sons, Division of Wilson & Co., Inc., Cambridge, Mass.
D. F. Riley, North Hatfield, Mass.
Rio Grande Valley Citrus Exchange, Weslaco, Texas. (Registered by Ashcraft-Wilkinson Co.)
Rodney Milling Co., Kansas City, Mo.
Roy Grain Co., Anawan St., Rehoboth, Mass.
H. M. Rubin Co., 9-19 38th Ave., Long Island City, N. Y.
Russell-Miller Milling Co., Minneapolis, Minn.
Ryther & Warren Co., Belchertown, Mass.
St. Lawrence Flour Mills Co., Ltd., 2110 Notre Dame St. W., Montreal, Que., Canada
Saunders Mills, Inc., Box 1482, Central Station, Toledo, Ohio
Schenley Distilleries, Inc., 350 Fifth Ave., New York, N. Y.
Schoeneck Farms, Inc., Nazareth, Penn.
Joseph E. Seagram & Sons, Inc., Louisville, Ky.
Sears, Roebuck & Co., Chicago, Ill.
Shellabarger Mill & Elevator Co., Salina, Kan.
Sherwin-Williams Co., 101 Prospect Ave., N. W., Cleveland, Ohio
W. J. Small Co., Inc., Neodesha, Kan.
Smith-Bodfish-Swift Co., Vineyard Haven, Mass.
A. E. Staley Manufacturing Co., Decatur, Ill.
Standard Milling Co., 309 West Jackson Blvd., Chicago, Ill.
Stratton & Co., Concord, N. H.
Sunny Slope Farms, Nazareth, Penn.
Swift & Co., Union Stock Yards, Chicago, Ill.
Swift & Company Soybean Mills, Cairo, Ill.
C. H. Symmes & Co., Winchester, Mass.
Taft Bros., Uxbridge, Mass. (Registered by Chas. M. Cox Co.)
Tioga Mills, Inc., Waverly, N. Y.
Toledo Soybean Products Co., Toledo, Ohio
Jacob Trinley & Sons, Linfield, Penn.
Union National Mill, Springfield, Ohio
Union Sales Corporation, Columbus, Ind. (Distributor for Union Starch & Refining Co.)
United Cooperative Farmers, Inc., Fitchburg, Mass.
United Farmers Cooperative Creamery Association, Inc., Charlestown, Mass.
Unity Feeds, Inc., 177 Milk St., Boston, Mass.
Universal Grain Corporation, 2 Broadway, New York, N. Y.
Valier & Spies Milling Co., 5020 Shreve Ave., St. Louis, Mo.
Van Iderstine Co., Long Island City, N. Y.
Arthur Ventura Grain Co., 7 Purchase St., Taunton, Mass.
Victor Flour Mills, Inc., Pittsford, N. Y.
Vita-Lac Co., Middlebury Center, Penn. (Registered by Center Milk Products Co.)
O. B. Vunck & Co., Voorheesville, N. Y.
Wakefield Sawdust & Shavings Co., 68-74 Water St., Wakefield, Mass.
Hiram Walker & Sons, Inc., Foot of Edmund St., Peoria, Ill.
Wamesit Co., Wamesit (Tewksbury), Mass.
Ward Milk Products Division of Kraft Cheese Co., 500 Peshtigo Ct., Chicago, Ill.
C. P. Washburn Co., Middleboro, Mass.
Wayne County Grangers Feed Corporation, Clyde, N. Y.
H. K. Webster Co., Lawrence, Mass.
West-Nesbitt, Inc., Oneonta, N. Y.
Western Condensing Co., Petaluma, Cal. (Golden Eagle Milling Co., Distributors)
Whitmoyer Laboratories, Inc., Myerstown, Penn.
Williams Bros. Co., Kent, Ohio
Est. M. G. Williams, Box 603, Taunton, Mass.
Wilmington Packing Co., New Boston St., Woburn, Mass.
Wilson & Co., Inc., 4100 South Ashland Ave., Chicago, Ill.
Wirthmore Grain & Coal Co., South Deerfield, Mass.
Stanley Wood Grain Co., Taunton, Mass.
Worcester Grain & Coal Co., Worcester, Mass.
Yantic Grain & Products Co., Norwich, Conn.

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MASSACHUSETTS

AGRICULTURAL EXPERIMENT STATION

CONTROL SERIES BULLETIN NO. 114 OCTOBER 1942

Inspection of Commercial Fertilizers and Agricultural Lime Products

By Fertilizer Control Service Staff

This is the sixty-ninth report of the Massachusetts Fertilizer Control made in accordance with Chapter 94, Sections 250 to 261, inclusive, of Massachusetts General Laws 1920, as amended by Chapter 67, Acts of 1933.

Massachusetts State College
Amherst, Mass.

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INSPECTION OF COMMERCIAL FERTILIZERS AND AGRICULTURAL LIME PRODUCTS FOR THE SEASON OF 1942

By Fertilizer Control Service Staff:

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James T. Howard, Inspector
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Louis A. Graves, Inspector
Joseph A. Martell, Laboratory Assistant
Cora B. Grover, Senior Clerk

PERTINENT FACTS RELATING TO MASSACHUSETTS FERTILIZER LAW

Commercial Fertilizers

Registration is required annually on January 1.

Registration fee is $8 for each element: nitrogen, phosphoric acid, potash, magnesia.

Label must show:

- Net weight of fertilizer
- Name, brand or trade mark, and grade
- Name and address of manufacturer
- Guaranteed analysis: nitrogen, available phosphoric acid, water soluble potash. A guarantee of total phosphoric acid may be used instead of available phosphoric acid for bone, untreated phosphate rock, tankage, dried and pulverized manures, ground seeds, and wood ashes

Tonnage reports are required semi-annually, on January 1 and July 1.

Tonnage fee: 6 cents per ton of 2,000 pounds.

Lime Products

Registration is required annually on January 1.

Registration fee: $12 for each brand.

Label must show:

- Net weight of product
- Name, brand or trade mark, and form of lime
- Name and address of manufacturer
- Guaranteed analysis: calcium oxide, magnesium oxide, carbonates of calcium and magnesium, or calcium sulphate (in gypsum or land plaster)

Make checks payable to Massachusetts Agricultural Experiment Station and send correspondence to

PHILIP H. SMITH,
Massachusetts Agricultural Experiment Station
Amherst, Mass.

MANUFACTURERS AND BRANDS

Registrations have been perfected in Massachusetts during 1942 by 85 firms, covering 420 brands of mixed fertilizer and unmixed fertilizing materials.

The following brands were not found on display by the sampling agent at any point in the state and therefore do not appear in the tables of analyses.

Brands of Fertilizer Registered but Not Sampled

American Potash & Chemical Corporation
Muriate of Potash (0-0-60)

Apothecaries Hall Co.
Liberty Green-Gro 6-5-3
Liberty High Grade Vegetable Fertilizer 5-10-10
Superphosphate 16% (0-16-0)

Archer-Daniels-Midland Co.
Archer Brand 44% Protein Soybean Oil Meal (7-0-0)

Armour Fertilizer Works
Armour's Big Crop Fertilizer 4-16-20
Armour's Big Crop Tobacco Special 7-3-7
Armour's Special Tree Food Mixture 10-8-6
Muriate of Potash 50% (0-0-50)

Baugh & Sons Co.
Baugh's Advanced Growers Special 5-8-7
Baugh's 20% Superphosphate (0-20-0)

Berkshire Chemical Co.
Berkshire Fertilizer 4-8-10
Berkshire Cotton Hull Ash (0-0-30)

Consolidated Rendering Co.
Corenco 5-9-8
Corenco 5-10-10

Davison Chemical Corporation
Davco Granulated Fertilizer 6-6-5

Essex County Co-operative Farming Assoc.
S-X Brand 7-7-7

Glendale Poultry Farm
Biff Peat-Poultry Manure (2-3-1)

Glidden Co., Soya Products Division
Glidden 4 Hi Brand Protein Soybean Oil Meal (7-0-0)

International Minerals & Chemical Corp.
International 7-6-6
International 8-16-16, 2% MgO
International 10-6-4

Mechling Bros. Chemicals, Division of General Chemical Co.
Veget-Aid 5-10-5

Old Deerfield Fertilizer Co., Inc.
Old Deerfield 4-12-4
Old Deerfield Tree & Turf 10-6-4

Rogers & Hubbard Co.
Hubbard's Seeding Fertilizer 3-7-6

William H. Rorer, Inc.
Plant Dinner 5-7-5

Ruhm Phosphate & Chemical Co.
Red Seal Brand Ruhm's Phosphate Rock 32 (0-32-0)
Red Seal Brand Ruhm's Phosphate Rock 30 (0-30-0)

Standard Wholesale Phosphate & Acid Works Inc.
Standard 4-8-10

Stockdale Fertilizer Co.
Ovene (Sheep Manure) (2-1-2)

Swift & Company Fertilizer Works
Swift's N eL 3-12-6
Swift's N eL 5-8-7
Swift's Red Steer 3-12-6
Swift's Special Golf Fertilizer 6-12-4
Swift's Special Golf Fertilizer 12-6-4

Tennessee Corporation
Loma 10-6-4

C. P. Washburn Co.
Superphosphate 18% (0-18-0)

DRAWING OF SAMPLES

Between April 1 and June 15, three sampling agents made a thorough canvass of the state: James T. Howard in Hampshire, Hampden, Franklin, and Berkshire Counties; Louis A. Graves in Norfolk, Bristol, Plymouth, Barnstable, and Dukes Counties; and Comfort L. Whiting in Essex, Middlesex, Suffolk, and Worcester Counties. They visited 147 towns, took 1,460 samples, representing 382 brands, from stock in the possession of 360 agents or owners, and called at 279 places where no samples were drawn because the agency had been discontinued, the stock was all sold out, or sufficient samples had already been taken of the brands found. They sampled 17,589 sacks, representing 7,243 tons of fertilizer. One ton was sampled to every nine and seven-tenths tons sold in the state.

FERTILIZER TONNAGE

Tonnage of Mixed and Unmixed Fertilizers Sold in Massachusetts

	July 1, 1939, to July 1, 1940	July 1, 1940, to July 1, 1941	July 1, 1941, to July 1, 1942
Mixed fertilizers	43,736	46,212	53,602
Fertilizer chemicals and materials unmixed	19,673*a*	18,613*b*	15,470*c*
Pulverized natural manures	1,589	1,414	1,508
Totals	64,998	66,239	70,580

a Does not include 2,305 tons of 47% superphosphate distributed by the A.A.A.

b Does not include 9,192 tons of 20% superphosphate distributed by the A.A.A.

c Does not include 1,604 tons of 18% superphosphate and 8,394 tons of 20% superphosphate distributed by the A.A.A.

The tonnage tables present figures for one year, July 1, 1941, to July 1, 1942, for both mixed fertilizers and unmixed fertilizer materials. In case of the mixed fertilizers, the grade represents the plant food guarantee and is expressed in the order of nitrogen, available phosphoric acid, potash.

Tonnage of Mixed Fertilizers

Grade	Tonnage	Brands	Grade	Tonnage	Brands
5-8-7	14,957	26	5-10-4	164	—
7-7-7	4,345	15	6-12-8	154	—
4-8-4	4,112	17	4-10-4	153	—
4-8-10	3,235	15	8-5-8	149	—
6-3-6	3,147	10	8-10-8	136	—
5-10-10	3,040	13	4-9-3	135	—
5-8-10	2,378	9	8-8-8	133	—
4-8-7	1,649	11	8-6-4	129	—
4-12-4	1,565	7	10-5-5	121	—
6-3-7	1,530	—	7-7-5	121	—
8-16-16	1,426	6	6-8-2	96	—
5-10-5	1,373	13	4-3-12	90	—
5-6-4	630	—	6-7-4	80	—
10-10-10	590	—	8-8-4	80	—
3-10-6	529	—	8-5-2	72	—
8-16-14	484	5	7-14-21	65	—
4-16-20	483	—	6-6-5	37	—
3-10-4	422	5	3-7-6	29	—
6-12-12	409	—	7-7-6	27	—
8-16-20	359	5	12-4-4	26	—
8-24-8	357	—	5-7-3	23	—
7-6-6	340	—	7-8-4	23	—
10-6-4	335	5	10-8-6	20	—
3-12-6	301	—	5-8-6	17	—
5-3-5	275	—	8-6-3	17	—
5-5-15	271	10	8-6-6	14	—
8-6-2	265	—	6-5-3	13	—
5-15-5	246	—	7-3-7	12	—
5-12-6	240	—	2-10-2	10	—
5-5-5	217	—	3-3-3	10	—
8-4-8	215	—	4-4-2	10	—
4-12-6	204	—	5-5-10	10	—
0-20-20	189	—	Miscellaneous	46	13
7-5-3	165	—	Special mixtures	1,097	—
			Totals	53,602	280

Tonnage of Unmixed Fertilizing Materials

Material	Tonnage	Brands	Material	Tonnage	Brands
Superphosphate 20%	3,051	11	Muriate of potash 50%	237	—
Nitrate of soda	2,892	5	Cottonseed meal	204	—
Bone meal	1,510	20	Fish	125	5
Pulverized animal manures	1,508	23	Cotton hull ashes	100	—
Milorganite	1,375	—	Peat	95	—
Superphosphate 18%	1,112	—	Tankage	73	—
Superphosphate 16%	1,013	5	Superphosphate 47%	67	—
Cottonseed meal-castor pomace	906	5	Wood ashes	65	—
Muriate of potash 60%	805	10	Sulfate of potash	61	5
Sulfate of ammonia	521	8	Linseed meal	47	—
Castor pomace	511	7	Process tankage	26	—
Cyanamid	368	—	Uramon	9	—
Nitrate of soda-potash	290	—	Dried blood	6	—
			Total	16,978	140

MIXED FERTILIZERS

Deficiency Statistics for Mixed Fertilizers

Manufacturer	Number of Brands		Number of Tests or Determinations.				
	Analyzed	With no Deficiencies	Totals	Not Exceeding ¼ Per Cent Below Guarantee	Between ¼ and ½ Per Cent Below Guarantee	Between ½ and ¾ Per Cent Below Guarantee	More than ¾ Per Cent Below Guarantee
Acme Guano Co.	4	1	12	1	2	0	0
Agricultural Laboratories, Inc.	1	1	3	0	0	0	0
American Agricultural Chemical Co.	28	10	84	16	5	2	1
Apothecaries Hall Co.	11	8	33	1	1	0	1
Armour Fertilizer Works	20	5	60	18	0	0	1
Ernest J. Bantle	2	2	6	0	0	0	0
F. A. Bartlett Tree Expert Co., Inc.	1	1	3	0	0	0	0
Baugh & Sons Co.	4	2	12	3	0	1	0
Belmont Gardens	1	1	3	0	0	0	0
Berkshire Chemical Co.	12	3	36	8	0	1	1
Joseph Breck & Sons Corporation	5	2	15	1	0	1	1
Brewer Tree Expert Co.	1	0	3	1	1	0	0
Collins Seed Service Co.	4	2	12	3	0	0	0
Consolidated Rendering Co.	16	7	48	9	0	0	0
Davey Tree Expert Co.	1	0	3	1	0	0	0
Eastern States Farmers' Exchange	17	12	63	3	0	0	2
Thomas W. Emerson Co.	2	0	6	2	0	0	1
Essex County Co-operative Farming Association	2	2	7	0	0	0	0
Excell Laboratories	1	1	3	0	0	0	0
H. L. Frost & Higgins Co.	2	2	6	0	0	0	0
Thomas J. Grey Co.	1	0	3	0	0	0	1
Hartney-Amalia, Inc.	2	1	6	1	1	0	0
Henderson & Herndon Tree Co., Inc.	1	1	3	0	0	0	0
Hixon Tree Co.	1	0	3	1	0	0	0
A. H. Hoffman, Inc.	1	1	3	0	0	0	0
Hydroponic Chemical Co., Inc.	1	1	3	0	0	0	0
Hy-Trous Corporation	1	1	3	0	0	0	0
International Minerals & Chemical Corporation	16	6	50	7	3	1	0
John D. Lyon, Inc.	1	1	3	0	0	0	0
McClain Brothers Co.	1	0	3	1	0	0	0
Middlesex County Farm Bureau Asso.	1	1	3	0	0	0	0
National Plant Foods, Inc.	1	0	3	0	1	0	0
New England Toro Co.	2	1	6	1	0	0	0
New England Tree Expert Co., Inc.	1	0	3	1	1	0	0
Old Deerfield Fertilizer Co., Inc.	15	13	47	2	1	0	0
Olds & Whipple, Inc.	11	10	33	1	0	0	0
F. G. Phillips Co.	1	1	3	0	0	0	0
Plantabbs Co.	1	0	3	1	0	0	0
Plantspur Products Co.	1	0	3	0	2	0	0
Ra-Pid-Gro Corporation	1	0	3	0	0	0	3
Rogers & Hubbard Co.	27	15	81	10	2	1	1
O. M. Scott & Sons Co.	1	0	3	0	1	0	0
Sears, Roebuck & Co.	1	0	3	1	0	0	0
Standard Wholesale Phosphate & Acid Works, Inc.	6	1	18	3	2	0	1
Sutton & Sons, Ltd.	1	0	3	1	0	0	0
Swift & Company Fertilizer Works	6	1	18	6	1	0	0
Tennessee Corporation	1	0	3	1	0	0	0
Universal Chemical Co.	1	0	3	1	0	0	0
C. P. Washburn Co.	4	3	12	1	0	0	0
Winslow Nurseries	1	0	3	0	1	1	0
Wirthmore Retail Stores	4	4	12	0	0	0	0
Woodruff Fertilizer Works, Inc.	5	3	15	1	1	0	0
Totals	254	127	779	108	26	8	14

Of the 254 brands analyzed, 127, or 50 percent, showed no deficiencies. Out of 779 plant food guarantees made, 80 percent were fully maintained.

The deficiency table shows the following statistics:

Deficiencies not exceeding ¼ of one percent, 108

Deficiencies between ¼ and ½ of one percent, 26

Deficiencies between ½ and ¾ of one percent, 8

Deficiencies more than ¾ of one percent, 14

Serious Commercial Shortages in Mixed Fertilizers

Amount of Shortage per Ton	Number of Samples
More than $5	3
Between $4 and $5	2
Between $3 and $4	2
Between $2 and $3	6
Between $1 and $2	19

Average Variation from Guaranteed Analysis

Fourteen firms have registered five or more brands of mixed fertilizers. On the basis of composition found by analysis as well as of tonnage sold, the following table shows to what extent each manufacturer was successful in avoiding deficiencies in plant food guarantees in his mixtures. Four of the fourteen firms have an average deficiency in one or more plant food elements.

Manufacturer	Average Percentage of Plant Food Above or Below the Minimum Guarantee		
	Nitrogen	Available Phosphoric Acid	Water Soluble Potash
American Agricultural Chemical Co.	+	+	+
Apothecaries Hall Co.	+	+	+
Armour Fertilizer Works	— .06	+	+
Baugh & Sons Co.	+	+	— .31
Berkshire Chemical Co.	+	+	+
Consolidated Rendering Co.	+	+	+
Eastern States Farmers' Exchange	+	+	+
International Minerals & Chemical Corp.	— .03	+	+
Old Deerfield Fertilizer Co., Inc.	+	+	+
Olds & Whipple, Inc.	+	+	+
Rogers & Hubbard Co.	+	+	+
Standard Wholesale Phosphate & Acid Works, Inc.	— .21	+	+
Swift & Company Fertilizer Works	+	+	+
Woodruff Fertilizer Works, Inc.	+	+	+

Explanation of Tables of Analyses

Guarantee. The plant food guarantee or the grade of each fertilizer is made a part of the trade name under the heading "Name of Manufacturer and Brand", and is expressed as nitrogen, available phosphoric acid, and water soluble potash and in that order.

Mixtures Substantially Complying with the Guarantee. In addition to the analysis of those fertilizers which meet their guarantees in every respect, this table includes also those mixtures which have one or more elements below the guaranteed percentage but have a shortage of less than $1 per ton.

Inferior Nitrogen. The presence of inferior forms of organic nitrogen is indicated by footnotes.

Potash Forms. Tests for chlorine are made only on tobacco mixtures and on those fertilizers which carry a guarantee of potash in forms other than muriate. When the amount of chlorine present in any brand exceeds the tolerance allowed for that brand, this fact is indicated by a footnote.

Mixtures Showing a Commercial Shortage of $1 or More Per Ton.

Name of Manufacturer and Brand	Where Sampled	Approximate Commercial Shortage Per Ton	Nitrogen Found		Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found	Magnesium Oxide	
			Water Insoluble Organic	Total			Found	Guaranteed
Acme Guano Co.								
Acme 7-7-7 (Plant Food)	Westfield	$4.27	.98	6.60	7.35	7.54	—	—
American Agricultural Chemical Co.								
AA Double Strength Fertilizer 8-16-20	West Bridgewater	1.97	.13	7.96	14.41	20.68	—	—
Agrico Country Club Fertilizer 8-6-4	Hatfield	1.16	.68	7.55	6.52	4.00	—	—
Agrico Country Club Fertilizer 8-6-4 (*a*)	Boston	2.33	.64	6.97	7.50	4.05	—	—
Agrico for Fruit 8-8-4 (*a*)	Attleboro	2.94	.14	7.40	7.48	4.41	—	—
Agrico for Potatoes, Double Strength 8-16-20 (*b*)	Waltham	2.04	.16	7.45	16.03	19.16	—	—
Apothecaries Hall Co.								
Liberty High Analysis Fertilizer 8-16-16	Sheffield	5.45	1.47	10.11	19.43	8.91	—	—
Armour Fertilizer Works								
Armour's Big Crop Fertilizer 5-15-5	Topsfield	1.96	.62	5.00	13.42	5.79	—	—
Armour's Big Fertilizer 8-16-16 (*b*)	Chelsea	2.02	.30	7.58	15.22	16.06	—	—
Berkshire Chemical Co.								
Berkshire Fertilizer 5-8-10 (*b*)	Seekonk	1.05	.38	5.00	7.15	10.21	—	—
Berkshire Fertilizer 5-10-10	Dartmouth	1.82	.22	5.27	8.53	10.68	—	—
Joseph Breck & Sons Corporation								
Brexone Bulb Food 5-8-5	Boston	26.73	.72	5.29	2.59	5.67	—	—

Eastern States Farmers' Exchange								
Eastern States 0-20-20	Worcester	1.58	—	—	21.24	17.93	—	—
Eastern States 0-20-20 (*a*)	Framingham	1.27	—	—	18.89	22.40	—	—
Eastern States 4 16-20 (*a*)	North Cambridge	1.71	.20	4.24	18.61	17.70	1.38	1.00
Eastern States 8-16-16 Low Chlorine Special	North Cambridge	3.12	.44	8.01	13.47	16.90*c*	2.45	2.00
Eastern States 8-16-16 SM — Soluble Magnesium (*a*)	East Lexington	1.45	.21	7.59	15.55	16.89	2.32	2.00
Thomas W. Emerson Co.								
English Formula Lawn & Garden Dressing 5-7-3	Beverly	4.59	2.74	5.30	5.37	2.86	—	—
English Formula Lawn & Garden Dressing 5-7-3	Randolph	1.54	2.85	5.36	6.41	2.87	—	—
Thomas J. Grey Co.								
Grey's 9-6-6 Plant Food	Boston	7.66	.35	7.67	7.93	9.85	—	—
International Minerals & Chemical Corporation								
International 5-5-15	Hadley	3.48	2.26	4.43	5.55	16.28*c*	—	—
International 6-3-6	Sunderland	1.21	3.02	5.68	3.24	6.66*c*	—	—
International 8-6-2	Beverly	1.48	1.63	7.59	6.42	2.39	—	—
New England Tree Expert Co., Inc.								
New Life Concentrated Tree Food 10-8-6	Lowell	1.10	.14	9.56	7.93	6.46	—	—
Plantspur Products Co.								
Plantspur Fertilizer 4-4-2	Brockton	— *d*	1.29*e*	3.69	4.36	1.68	—	—
Ra-Pid-Gro Corporation								
Ra-Pid-Gro 23-27-17	New Bedford	— *d*	—	20.92	29.34	13.31	—	—
Ra-Pid-Gro 23-27-17	West Newton	— *d*	.03	21.68	22.81	15.35	—	—

a One other sample complied with the guarantee.
b Two other samples complied with the guarantee.
c In forms other than muriate.
d Since this material is sold in small packages a calculation of the shortage per ton is not feasible. Deficiency found is great enough for inclusion of this material with other seriously deficient mixtures.
e The water insoluble nitrogen was of inferior quality.

Mixtures Showing a Commercial Shortage of $1 or More Per Ton—Concluded

Name of Manufacturer and Brand	Where Sampled	Approximate Commercial Shortage Per Ton	Nitrogen Found		Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found	Magnesium Oxide	
			Water Insoluble Organic	Total			Found	Guaranteed
Rogers & Hubbard Co.								
Hubbard's Corn and Grain Fertilizer 3-10-4 (*a*)	Great Barrington	$1.90	.94	3.19	8.88	4.13	—	—
Standard Wholesale Phosphate & Acid Works, Inc.								
Standard 10-5-5	Hadley	2.73	.90	9.21	5.35	6.41	—	—
Swift & Co.								
Swift's Red Steer 8-16-14	Gardner	1.59	.09	7.70	15.31	14.38	—	—
Swift's Red Steer 8-16-14	Westboro	1.60	.09	7.71	15.39	13.85	—	—
Swift's Red Steer 8-16-14	Palmer	1.67	.09	7.96	14.92	13.70	—	—
Swift's Red Steer 8-16-14	Rutland	1.43	.09	7.62	15.61	14.14	—	—
Swift's Red Steer 8-16-14 (*f*)	Danvers	1.29	.09	7.74	15.48	14.35	—	—
Woodruff Fertilizer Works								
Woodruff's Tobacco Special Fertilizer 6-3-6 (*a*)	Hatfield	2.47	2.65	5.67	3.88	6.63*c*	—	—

a One other sample complied with the guarantee.
c In forms other than muriate.

f Four other samples complied with the guarantee. All samples were from State Institutions.

Mixtures Substantially Complying with Guarantees.

Name of Manufacturer and Brand	Nitrogen Found		Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found
	Water Insoluble Organic	Total		
Acme Guano Co.				
Acme 4-8-4	.59	4.27	7.85	4.34
Acme 5-8-7	.70	5.22	8.06	6.64
Acme 5-10-5	.35	5.27	10.27	5.64
Agricultural Laboratories, Inc.				
Stimuplant 11-12-15	—	12.38	11.89	20.52
Stimuplant 11-12-15	—	13.71	12.96	30.42
American Agricultural Chemical Co.				
AA Corn Favorite 3-10-4	.29	3.14	10.05	4.50
AA Corn Favorite 3-10-4	.29	3.21	9.63	4.67
AA Cranberry Fertilizer 5-6-4	.31	5.01	6.07	4.30
AA Cranberry Fertilizer 5-6-4	.42	5.18	6.66	4.17
AA Double Strength Fertilizer 8-16-14	.20	8.32	15.58	13.80
AA Double Strength Fertilizer 8-16-14	.14	7.86	16.47	17.05
AA Market Garden Fertilizer 4-8-4	.44	4.24	8.37	4.17
AA Market Garden Fertilizer 4-8-4	.42	4.21	7.88	4.13
AA Potato Grower 5-8-10	.43	5.07	8.28	9.89
AA Potato Grower 5-8-10	.44	5.00	8.09	10.18

Mixtures Substantially Complying with Guarantees—Continued.

Name of Manufacturer and Brand	Nitrogen Found		Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found
	Water Insoluble Organic	Total		
American Agricultural Chemical Co.—Concluded				
AA Potato & Root Crop Fertilizer 4-8-10	.36	4.27	8.09	10.16
AA Potato & Root Crop Fertilizer 4-8-10	.44	4.08	8.32	9.85
AA Potato & Vegetable Fertilizer 5-8-7	.48	5.14	8.18	7.10
AA Potato & Vegetable Fertilizer 5-8-7	.40	4.83	8.50	7.87
AA Tobacco Starter 5-5-15	1.89	4.81	5.78	15.43*a*
AA Top Dresser 7-7-7	.40	7.07	7.29	6.76
AA Top Dresser 7-7-7	.47	7.04	7.45	6.81
Agrico for Aroostook with 10% Potash 5-8-10	.39	4.87	10.11	9.18
Agrico for Aroostook with 10% Potash 5-8-10	.42	4.99	8.01	10.17
Agrico for Corn 3-10-6	.36	3.77	9.83	5.74
Agrico for Corn 3-10-6	.31	3.24	9.73	5.72
Agrico for Corn 3-10-6	.31	3.76	9.80	6.04
Agrico for Corn 4-12-6	.38	3.99	12.46	6.56
Agrico for Corn 4-12-6	.40	4.62	11.93	6.65
Agrico Country Club Fertilizer 6-8-2	1.58	5.70	8.24	2.29
Agrico Country Club Fertilizer 6-8-2	1.71	6.01	9.37	4.34
Agrico Country Club Fertilizer 8-6-2	2.65	8.00	7.26	2.54
Agrico Country Club Fertilizer 8-6-2	3.05	8.00	6.79	2.44
Agrico Country Club Fertilizer 8-6-4 (*b*)	.75	7.83	6.45	4.16
Agrico for Fruit 8-8-4 (*b*)	.09	7.92	8.02	4.18
Agrico for Gardens 4-10-4	1.26	4.52	9.58	4.29

Agrico for Lawns, Trees & Shrubs 7-7-5	1.16	6.70	7.59	4.91
Agrico for Lawns, Trees & Shrubs 7-7-5	1.21	7.31	6.36	5.82
Agrico for Lawns, Trees & Shrubs 7-7-5	1.27	7.02	6.91	4.55
Agrico for New England 4-8-10	.37	4.06	7.94	9.66
Agrico for New England 4-8-10	.38	4.44	8.40	9.67
Agrico for Onions 5-10-5	.48	4.99	9.93	5.31
Agrico for Onions 5-10-5	.53	4.86	10.05	5.34
Agrico for Potatoes & Vegetables 5-8-7	.40	5.10	8.06	6.94
Agrico for Potatoes & Vegetables 5-8-7	.38	5.21	8.06	7.21
Agrico for Potatoes, Double Strength 8-16-14	.14	8.08	15.80	14.06
Agrico for Potatoes, Double Strength 8-16-14	.13	8.07	16.24	15.29
Agrico for Potatoes, Double Strength 8-16-20	.15	8.08	16.34	19.68
Agrico for Potatoes, Double Strength 8-16-20 (*b*)	.17	8.07	16.63	19.38
Agrico for Seeding Down 4-16-20	.10	4.18	15.86	20.58
Agrico for Seeding Down 4-16-20	.11	4.18	16.83	18.92
Agrico for Seeding Down 4-16-20	.13	4.25	16.21	19.84
Agrico for Tobacco 6-3-6	4.06	5.93	3.55	6.87*a*
Agrico for Tobacco 6-3-6	4.10	5.91	3.50	6.65*a*
Agrico for Top Dressing 7-7-7	.42	7.02	7.38	6.75
Agrico for Top Dressing 7-7-7	.39	7.05	7.44	7.35
Co-op 5-8-7 Fertilizer	.34	5.18	8.03	7.33
Co-op 5-8-7 Fertilizer	.38	5.33	7.92	7.25
Apothecaries Hall Co.				
Liberty High Grade Corn 4-12-4	.83	4.53	11.72	5.26
Liberty High Grade Market Gardeners 5-8-7	.85	5.37	8.53	7.35
Liberty High Grade Market Gardeners 5-8-7	1.03	5.50	8.61	7.32
Liberty Market Gardeners Special 4-8-4	.77	4.33	8.37	4.95
Liberty Market Gardeners Special 4-8-4	.88	4.04	8.28	5.34

a In forms other than muriate.
b See table of "Mixtures showing a commercial shortage of $1 or more per ton."

Mixtures Substantially Complying with Guarantees—Continued.

Name of Manufacturer and Brand	Nitrogen Found		Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found
	Water Insoluble Organic	Total		
Apothecaries Hall Co.—Concluded				
Liberty Potato & General Crops 4-8-10	.57	4.07	8.00	10.66
Liberty Potato & General Crops 4-8-10	.60	4.26	8.42	10.94
Liberty Potato & Market Gardeners (Potash as Muriate) 4-8-7	.40	4.10	8.32	7.29
Liberty Special Fertilizer for Fruit & Grass 7-7-7	.70	7.15	7.31	8.81
Liberty Special Fertilizer for Fruit & Grass 7-7-7	.75	7.32	7.46	8.18
Liberty Tobacco Mixture 6-3-6	2.89	5.80	5.02	7.47*a*
Liberty Tobacco Mixture 6-3-6	2.81	6.00	5.34	7.53*a*
Liberty Tobacco Starter with Potash 5-5-15	2.09	5.20	5.95	16.59*a*
Liberty Tobacco Starter with Potash 5-5-15	2.08	5.22	6.22	16.04*a*
Liberty Top Dresser for Grass & Grain 8-8-8	.75	8.29	9.04	8.14
Liberty Truck Garden & Onion 5-10-5	.65	5.09	10.02	6.14
Armour Fertilizer Works				
Armour's Big Crop Fertilizer 2-10-2	.32	1.96	9.80	2.10
Armour's Big Crop Fertilizer 3-12-6	.60	3.16	11.83	6.46
Armour's Big Crop Fertilizer 3-12-6	.65	3.43	11.72	6.79
Armour's Big Crop Fertilizer 4-8-4	.54	3.85	7.96	4.19
Armour's Big Crop Fertilizer 4-8-4	.48	3.73	7.76	4.08
Armour's Big Crop Fertilizer 4-8-7	.58	3.97	8.09	7.40
Armour's Big Crop Fertilizer 4-8-7	.52	3.90	7.86	7.52
Armour's Big Crop Fertilizer 4-8-10	.64	3.81	7.98	9.57
Armour's Big Crop Fertilizer 4-8-10	.55	4.11	7.96	10.23
Armour's Big Crop Fertilizer 4-8-10	.65	3.94	8.14	10.58

Armour's Big Crop Fertilizer 4-16-4	.66	4.13	16.55	4.23
Armour's Big Crop Tobacco Special 5-3-5	2.40	5.35	3.78	5.34*a*
Armour's Big Crop Tobacco Starter 5-5-15	1.06	4.85	5.07	16.48*a*
Armour's Big Crop Fertilizer 5-8-7	.60	4.86	8.25	7.04
Armour's Big Crop Fertilizer 5-8-7	.71	4.87	8.46	7.23
Armour's Big Crop Fertilizer 5-8-7	.54	4.85	8.20	7.26
Armour's Big Crop Fertilizer 5-8-10	.53	4.95	7.68	9.91
Armour's Big Crop Fertilizer 5-8-10	.62	5.21	8.44	10.48
Armour's Big Crop Fertilizer 5-10-5	.37	4.95	10.33	5.60
Armour's Big Crop Fertilizer 5-10-5	.52	5.05	10.26	5.24
Armour's Big Crop Fertilizer 5-10-10	.71	5.23	10.11	10.12
Armour's Big Crop Fertilizer 5-10-10	.56	5.08	10.02	10.38
Armour's Big Crop Tobacco Special 6-3-6	3.26	5.96	3.63	6.59*a*
Armour's Big Crop Tobacco Special 6-3-6	3.35	5.87	3.45	6.35*a*
Armour's Big Crop Fertilizer 7-7-7	.57	7.08	7.17	7.22
Armour's Big Crop Fertilizer 7-7-7	.57	6.79	7.10	7.63
Armour's Big Crop Fertilizer 8-16-16	.22	8.02	17.28	15.66
Armour's Big Crop Fertilizer 8-16-16 (*b*)	.14	8.02	16.26	16.30
Armour's Big Crop Fertilizer 8-16-20	.20	7.93	15.96	20.12
Armour's Big Crop Fertilizer 8-16-20	.17	8.01	16.40	20.24
Armour's Big Crop Fertilizer 10-5-5	.99	9.76	5.95	5.60
Armour's Garden & Lawn Fertilizer 4-8-8	.57	3.73	7.75	8.13
Armour's Garden & Lawn Fertilizer 4-8-8	.70	4.15	8.05	8.02
Armour's Special Putting Green Mixture 8-5-2	2.54	7.91	5.15	1.33
Armour's Special Putting Green Mixture 8-5-2	2.50	8.42	5.00	2.49
Ernest J. Bantle				
Bantle's Special Potato 5-8-7	.92	5.30	8.82	7.41

a In forms other than muriate.
b See table of "Mixtures showing a commercial shortage of $1 or more per ton."

Mixtures Substantially Complying with Guarantees—Continued.

Name of Manufacturer and Brand	Nitrogen Found		Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found
	Water Insoluble Organic	Total		
Ernest J. Bantle—Concluded				
Bantle's Special Tobacco 6-3-7	3.43	6.13	3.55	8.18*a*
Bantle's Special Tobacco 6-3-7	3.46	6.60	3.79	7.82*a*
F. A. Bartlett Tree Expert Co., Inc.				
Bartlett Green Tree Food 6-7-4	.94	6.62	7.94	4.60
Baugh & Sons Co.				
Baugh's Old Dependable Potato Grower 4-8-10	.22	3.99	8.09	9.39
Baugh's Peruvian Guano Substitute 4-8-5	.28	4.10	8.71	5.03
Baugh's Premium Plant Food & Soil Builder 5-10-5	.42	4.97	10.03	4.89
Baugh's Truckers Favorite 5-10-5	.30	5.13	10.36	5.92
Belmont Gardens				
Gardenia Fertilizer (Belgard) 6-15-4	.91	6.48	15.57	4.11
Gardenia Fertilizer (Belgard) 6-15-4	.81	6.47	15.47	5.06
Berkshire Chemical Co.				
Berkshire Fertilizer 4-8-4	.26	4.36	8.43	4.51
Berkshire Fertilizer 4-8-4	.25	4.03	7.92	4.67
Berkshire Fertilizer 4-8-7	.23	4.01	7.74	7.20
Berkshire Fertilizer 4-8-7	.28	4.09	7.82	7.44
Berkshire Fertilizer 4-12-4	.27	4.49	11.77	4.45
Berkshire Fertilizer Tobacco Starter 5-5-15	1.60	5.02	5.31	15.04*a*

Berkshire Fertilizer 5-8-7	.24	5.02	7.69	7.83
Berkshire Fertilizer 5-8-7	.24	5.19	8.17	7.40
Berkshire Fertilizer 5-8-10	.34	5.05	7.83	10.40
Berkshire Fertilizer 5-8-10 (*b*)	.42	5.26	7.34	10.18
Berkshire Fertilizer 5-10-5	.26	5.38	10.09	5.06
Berkshire Fertilizer 5-10-5	.22	5.16	10.01	5.24
Berkshire Fertilizer Tobacco 6-3-6	3.65	5.96	3.98	6.36*a*
Berkshire Fertilizer Tobacco 6-3-6	3.70	5.92	3.23	6.00*a*
Berkshire Fertilizer Grass Special 6-6-5	.20	5.86	6.08	4.90
Berkshire Fertilizer 7-7-7	.30	7.20	6.47	7.30
Berkshire Fertilizer 7-7-7	.19	7.03	7.14	8.12
Berkshire Golf Green Fertilizer 8-5-2	3.62	7.96	5.47	2.52
Joseph Breck & Sons Corporation				
Breck's Economy 5-8-7 Fertilizer for Vegetables	.28	4.94	8.26	7.31
Brexone for Lawns 5-10-4	1.14	5.10	10.31	4.65
Brexone for Lawns 5-10-4	1.14	5.05	10.40	4.63
Brexone for Lawns 5-10-4	1.15	5.17	10.20	4.19
Brexone Rose Food 4-12-4	.99	4.08	11.36	6.45
Brexone for Vegetables 5-10-10	1.21	5.03	10.30	10.97
Brexone for Vegetables 5-10-10	.93	5.06	10.57	10.56
Brewer Tree Expert Co.				
Brewer Tree Food 10-6-4	2.23	9.74	6.68	3.77
Collins Seed Service Co.				
Casta-Poma Grass Manure 5-6-2	1.70	5.11	6.78	2.11
Complete Grass Manure 6-8-2	1.68	5.86	8.72	2.00
Complete Grass Manure 6-8-2	1.96	6.30	7.56	2.77
General Purpose Manure 4-8-4	1.15	3.91	7.87	4.01
Ver-Best P. G. Manure 7-8-3	2.11	7.04	9.11	2.97

a In forms other than muriate.
b See table of "Mixtures showing a commercial shortage of $1 or more per ton."

Mixtures Substantially Complying with Guarantees—Continued

Name of Manufacturer and Brand	Nitrogen Found		Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found
	Water Insoluble Organic	Total		
Consolidated Rendering Co.				
Corenco 3-10-4 Animal Brand	.06	3.21	10.28	4.47
Corenco 3-10-4 Animal Brand	.10	3.28	10.70	4.20
Corenco 4-8-4 Corn & Vegetable	.06	4.05	8.19	4.62
Corenco 4-8-4 Corn & Vegetable	.07	4.07	8.49	4.14
Corenco 4-8-7 Market Garden	.06	4.19	7.92	8.15
Corenco 4-8-10 Potato Grower	.10	4.24	7.90	10.82
Corenco 4-8-10 Potato Grower	.05	3.97	7.76	10.56
Corenco 4-12-4 Complete Manure	.80	4.24	12.15	4.25
Corenco 4-12-4 Complete Manure	.08	4.21	11.89	4.87
Corenco 5-5-5 Lawn & Shrub	1.99	5.34	5.28	5.66
Corenco 5-5-5 Lawn & Shrub	2.42	4.88	5.13	5.48
Corenco 5-5-15 Tobacco Starter	2.00	4.95	5.92	16.24*a*
Corenco 5-8-7 General Grop Manure	.05	5.02	7.82	7.38
Corenco 5-8-7 General Crop Manure	.44	5.06	8.03	7.34
Corenco 5-8-7 General Crop Manure	.06	5.08	8.13	7.72
Corenco 5-8-10 Peerless Potato	.04	5.01	8.35	11.14
Corenco 5-8-10 Peerless Potato	.61	4.90	8.09	10.59
Corenco 5-10-5 Super Truck	.38	5.01	10.16	6.46
Corenco 6-3-6 Special Tobacco Grower	2.33	5.79	4.03	6.39*a*
Corenco 6-3-6 Special Tobacco Grower	2.89	5.86	4.17	6.69*a*

Corenco 7-7-7 Complete Fruit & Top Dressing	.06	7.07	7.20	7.39
Corenco 7-7-7 Complete Fruit & Top Dressing	.19	6.88	7.07	7.04
Corenco 8-6-4 Top Dressing	.59	7.86	6.25	4.56
Corenco 8-6-4 Top Dressing	.65	8.01	6.40	4.18
Corenco 8-16-14 Two-in-One	.65	8.50	16.82	15.08
Corenco 8-16-14 Two-in-One	.30	8.15	15.53	15.22
New England 8-6-2 Putting Green Special	2.13	8.08	6.03	2.92
New England 8-6-2 Putting Green Special	2.00	8.06	6.22	2.42
Spurz-On Fertilizer 4-1-2	2.60	4.24	3.22	1.77
Davey Tree Expert Co.				
Davey Tree Food 12-4-4	1.00	12.07	4.43	3.92

a In forms other than muriate.

Mixtures Substantially Complying with Guarantees—Continued

Name of Manufacturer and Brand	Nitrogen Found		Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found	Magnesium Oxide	
	Water Insoluble Organic	Total			Found	Guaranteed
Eastern States Farmers' Exchange						
Eastern States 0-20-20 (*b*)	—	—	20.47	20.00	—	—
Eastern States 4-16-20 (*b*)	.13	4.34	17.23	20.68	2.07	1.00
Eastern States 5-5-15 Tobacco	2.54	5.67	5.31	15.42*a*	3.38	2.00
Eastern States 5-10-5	.18	5.40	10.82	6.09	2.94	2.00
Eastern States 5-10-5	.19	5.14	10.47	5.42	3.62	2.00
Eastern States 5-10-10	.19	5.21	10.76	10.02	2.66	1.00
Eastern States 5-10-10	.16	5.25	11.09	9.59	2.33	1.00
Eastern States 5-15-5	.20	5.45	16.42	5.80	—	—
Eastern States 5-15-5	.25	5.42	15.25	5.98	—	—
Eastern States 7-7-7	.19	7.25	7.60	7.89	3.23	2.00
Eastern States 7-7-7	.20	7.22	7.67	7.52	2.97	2.00
Eastern States 7-14-21	.28	7.05	15.49	21.42	2.79	2.00
Eastern States 7-14-21	.29	7.10	13.92	21.72	2.75	2.00
Eastern States 8-4-8 Tobacco	3.44	8.57	4.00	8.21*a*	3.48	2.00
Eastern States 8-4-8 Tobacco	3.44	7.95	4.38	8.95*a*	3.33	2.00
Eastern States 8-8-8 C & B — Cranberry & Blueberry	.11	8.83	8.32	8.55	—	—
Eastern States 8-16-8	.16	8.23	17.57	8.42	2.43	1.00
Eastern States 8-16-8	.16	8.05	16.83	8.58	2.34	1.00
Eastern States 8-16-16	.17	8.03	16.69	17.15	1.79	.50
Eastern States 8-16-16	.12	8.14	16.33	17.53	1.99	.50
Eastern States 8-16-16 SM — Soluble Magnesium (*b*)	.29	8.02	16.88	16.69	2.70	.00

Eastern States 8-24-8	.26	8.64	25.04	8.74	—	—
Eastern States 8-24-8	31	8.30	24.67	8.57	—	—
Eastern States 10-5-5	20	10.00	5.48	6.21	2.50	1.00
Eastern States 10-5-5	21	10.00	5.73	5.82	2.75	1.00
Eastern States 10-10-10	21	9.84	11.10	12.02	2.14	1.00
Eastern States 10-10-10	22	10.11	9.72	10.83	2.32	1.00
Thomas W. Emerson Co						
Emseco Ground Conditioner 2-4-2	69[c]	1.93	4.32	2.56	—	—
Emseco Ground Conditioner 2-4-2	.65[c]	1.87	4.36	2.58	—	—
Essex County Co-operative Farming Association						
S-X Brand 4-12-4	38	1.07	12.14	4.49	—	—
S-X Brand 4-12-4	27	1.12	12.14	3.89	—	—
S-X Brand (1% MgO) 5-10-10	31	5.04	10.26	10.37	2.03	1.00
S-X Brand (1% MgO) 5-10-10	27	4.96	9.74	11.09	2.39	1.00
Excell Laboratories						
New Plant Life 2-1-2		2.56	1.26	2.38	—	—
New Plant Life 2-1-2	02	3.14	1.66	2.78	—	—
H. L. Frost & Higgins Co.						
8-6-3 Frost's Lawn & Shrubbery Special	3.56	8.21	6.56	4.16	—	—
8-6-3 Frost's Lawn & Shrubbery Special	3.60	8.17	6.80	3.85	—	—
8-6-6 Frost's Shade Tree Special	1.12	8.29	6.13	6.70	—	—
Hartney-Amalia, Inc.						
Rhozalia Food 5-7-6	1.74	6.00	7.74	6.67	—	—
Vitafood 7-7-6	1.59	6.69	7.57	5.86	—	—
Henderson & Herndon Tree Co., Inc.						
H & H Plant Food 5-5-10	2.89	5.48	6.18	11.29	—	—

a In forms other than muriate.
b See table of "Mixtures showing a commercial shortage of $1 or more per ton."
c The water insoluble nitrogen was of inferior quality.

Mixtures Substantially Complying with Guarantees—Continued

Name of Manufacturer and Brand	Nitrogen Found		Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found	Magnesium Oxide	
	Water Insoluble Organic	Total			Found	Guaranteed
Hixon Tree Co.						
Hixon's Plant Foods—Tree Vigor 7-6-6	1.51	6.71	6.75	6.44	—	—
Hixon's Plant Foods—Tree Vigor 7-6-6	1.94	6.92	6.56	6.38	—	—
A. H. Hoffman, Inc.						
Hoffman's Plant Food 5-8-6	1.19	5.00	9.83	6.44	—	—
Hoffman's Plant Food 5-8-6	1.20	5.16	9.81	6.30	—	—
Hydroponic Chemical Co., Inc.						
Hyponex 7-6-19	—	7.42	6.56	20.76	—	—
Hyponex 7-6-19	.02	7.27	6.44	19.97	—	—
Hy-Trous Corporation						
Hy-Trous Liquid 4-8-4	.02	5.69	9.99	5.37	—	—
Hy-Trous Liquid 4-8-4	.02	5.40	8.76	4.26	—	—
International Minerals & Chemical Corporation						
International 3-10-6	.38	3.17	10.39	6.33	—	—
International 4-8-4	.55r	4.69	9.12	4.57	—	—
International 4-8-4	.43	4.08	8.43	4.25	—	—
International 4-8-7	.35	4.04	8.23	7.40	—	—
International 4-8-7	.40	4.04	8.19	7.22	—	—
International 4-8-10	.14	3.91	8.35	10.23	—	—
International 4-8-10	.23	3.90	8.25	9.98	—	—

International 5-8-7	.40	4.92	8.61	7.46	—	—
International 5-8-7	1.57	5.00	9.03	6.66	—	—
International 5-8-7 (Composite of 15 samples collected from State Institutions)	.39	4.81	8.46	7.10	—	—
International 5-8-10	.14	5.05	8.28	10.02	—	—
International 5-8-10 (Composite of 6 samples collected from State Institutions)	.14	4.89	8.32	10.32	—	—
International 5-10-10	.15	5.04	10.69	9.67	—	—
International 5-10-10	.14	5.00	10.30	10.22	—	—
International 5-12-6	.14	5.02	12.81	6.21	—	—
International 5-12-6	.17	5.15	12.43	6.53	—	—
International 6-12-8	.38	5.67	12.24	7.98	—	—
International 6-12-8	.32	5.61	12.15	7.97	—	—
International 6-12-12-2	.61	6.07	12.47	12.06	2.84	2.00
International 6-12-12-2	.41	6.00	12.24	11.91	2.64	2.00
International 7-7-7	.12	6.83	7.65	7.11	—	—
International 7-7-7	.24	7.07	7.20	7.21	—	—
International 7-7-7 (Composite of 3 samples collected from State Institutions)	.16	6.66	7.43	7.10	—	—
International Caribee 5-10-10-2	1.13	5.10	10.40	10.60	3.26	2.00
International Caribee 5-10-10-2	1.04	5.09	10.93	9.65	2.90	2.00
International Caribee 7-5-3	1.67	7.17	5.17	3.27	—	—
International Caribee 7-5-3	1.55	7.04	5.10	3.49	—	—
John D Lyon, Inc.						
Old New England 5-7-3	3.44	5.53	7.30	4.09	—	—
McClain Brothers Co.						
Veg-E-Tonic 21-13-10	.09	21.01	12.89	10.80	—	—
Veg-E-Tonic 21-13-10	.10	21.02	12.79	11.32	—	—
Middlesex County Farm Bureau Association						
Lawn and Garden Fertilizer 6-5-4	3.31	6.68	5.63	4.65	—	—

c The water insoluble nitrogen was of inferior quality.

Mixtures Substantially Complying with Guarantees—Continued

Name of Manufacturer and Brand	Nitrogen Found		Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found	Magnesium Oxide	
	Water Insoluble Organic	Total			Found	Guaranteed
National Plant Foods, Inc.						
Hy-Gro 13-26-13	.04	12.66	27.23	14.48	—	—
New England Toro Co.						
Netco 5-8-7 Fertilizer	1.71	5.22	8.25	7.53	—	—
Netco 5-8-7 Fertilizer	1.74	5.30	8.28	7.75	—	—
Netco 7-8-4 Putting Green Formula	2.06	7.48	7.92	6.79	—	—
Netco 7-8-4 Putting Green Formula	2.44	7.05	7.63	5.85	—	—
Old Deerfield Fertilizer Co., Inc.						
Old Deerfield Corn & Seeding 3-12-6	.65	3.56	12.06	6.41	—	—
Old Deerfield Corn & Seeding 3-12-6	.62	3.47	12.17	6.32	—	—
Old Deerfield Corn & Seeding 3-12-6	.65	3.52	12.28	6.71	—	—
Old Deerfield Potato & Market Garden 4-8-7	.72	4.35	8.60	7.68	—	—
Old Deerfield Potato & Market Garden 4-8-7	.64	4.21	8.85	7.72	—	—
Old Deerfield High Potash 4-8-10	.72	4.42	8.64	10.41	—	—
Old Deerfield High Potash 4-8-10	.76	4.56	8.72	9.97	—	—
Old Deerfield Complete Tobacco 5-3-5	3.26	5.51	4.29	6.42*a*	—	—
Old Deerfield Lawnshrub 5-5-5	2.34	6.07	7.01	6.19	—	—
Old Deerfield Tobacco Starter Bone & Potash 5-5-15	1.89	5.89	6.29	15.62*a*	—	—
Old Deerfield Tobacco Starter Bone & Potash 5-5-15	1.79	5.81	6.07	16.01*a*	—	—
Old Deerfield Onion & Truck 5-8-7	.86	5.19	8.94	8.07	—	—
Old Deerfield Onion & Truck 5-8-7	.90	5.75	8.86	7.39	—	—

Old Deerfield Set Onion & Potash (with 2% MgO) Potash other than Muriate 5-8-7	.85	5.49	8.82	7.56*a*	4.02	2.00
Old Deerfield Trucker's Special 5-10-5	.91	5.11	10.30	5.57	—	—
Old Deerfield Trucker's Special 5-10-5	.90	5.32	10.63	5.80	—	—
Old Deerfield Potato 5-10-10	.82	5.41	10.03	10.67	—	—
Old Deerfield Potato 5-10-10	.91	5.32	9.98	10.54	—	—
Old Deerfield Complete Tobacco 6-3-6	3.40	6.56	4.28	7.20*a*	—	—
Old Deerfield Complete Tobacco 6-3-6	3.13	6.19	4.22	7.76*a*	—	—
Old Deerfield High Grade Tobacco 6-3-7	3.55	6.61	4.71	8.31*a*	—	—
Old Deerfield High Grade Tobacco 6-3-7	3.24	6.26	4.48	7.96*a*	—	—
Old Deerfield Grass Top Dressing 7-7-7	.84	6.92	7.56	7.75	—	—
Old Deerfield Grass Top Dressing 7-7-7	.86	7.17	7.56	7.01	—	—
Old Deerfield Concentrated Potato 8-16-20	.06	7.85	15.85	21.68	—	—
Old Deerfield Concentrated Potato (with 2% MgO) Potash other than Muriate 8-16-20	.96	8.07	15.62	20.96*a*	2.88	2.00
Olds & Whipple, Inc.						
O & W Special Fertilizer 4-3-12	1.83	5.09	4.92	15.00*a*	—	—
O & W 4-8-4 Market Garden Fertilizer	.60	4.43	8.17	4.73	—	—
O & W 4-8-4 Market Garden Fertilizer	.54	4.22	7.81	5.04	—	—
O & W Potato & General Purpose Fertilizer 4-8-7	.63	4.34	8.49	7.34	—	—
O & W 4-8-10 Fertilizer	.78	4.49	8.27	10.91	—	—
O & W Complete Tobacco Fertilizer 5-3-5	3.36	5.23	3.79	5.56*a*	—	—
O & W Complete Tobacco Fertilizer 5-3-5	3.14	5.05	4.09	6.86*a*	—	—
O & W 5-5-15 High Grade Tobacco Starter & Potash Compound	1.85	5.06	6.00	16.33*a*	—	—
O & W Potato & General Purpose Fertilizer 5-8-7	.84	5.37	8.32	7.46	—	—
O & W Potato & General Purpose Fertilizer 5-8-7	.74	5.02	7.80	7.69	—	—
O & W Market Garden Fertilizer 5-10-5	.75	5.38	10.11	5.77	—	—
O & W Market Garden Fertilizer 5-10-5	.74	5.43	10.32	6.07	—	—
O & W Fertilizer 5-10-10	.60	5.53	10.60	11.11	—	—
O & W Fertilizer 5-10-10	.59	5.48	10.64	10.98	—	—
O & W Blue Label Tobacco Fertilizer 6-3-6	3.70	6.12	3.78	6.73*a*	—	—
O & W Blue Label Tobacco Fertilizer 6-3-6	3.59	6.01	3.70	6.79*a*	—	—
O & W Top Dressing & Grass Fertilizer 7-7-7	.81	7.33	7.35	7.56	—	—
O & W Top Dressing & Grass Fertilizer 7-7-7	.89	7.50	7.38	7.97	—	—

a In forms other than muriate.

Mixtures Substantially Complying with Guarantees—Continued

Name of Manufacturer and Brand	Nitrogen Found		Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found
	Water Insoluble Organic	Total		
F. C. Phillips Co.				
Ferti-Flora 3-3-3	.01	3.15	3.03	3.57
Ferti-Flora 3-3-3	—	3.33	3.30	3.90
Plantabbs Co.				
Fulton's Plantabbs 11-15-20	—	10.76	18.24	24.24
Fulton's Plantabbs 11-15-20	.05	10.80	17.78	24.48
Rogers & Hubbard Co.				
Gro-Fast Plant Food 5-8-6	2.15	5.06	8.96	7.09
Gro-Fast Plant Food 5-8-6	1.85	5.01	8.82	7.47
Hubbard's All Soils Fertilizer 4-8-4	1.24	3.88	7.88	4.67
Hubbard's Carnation Special 3-10-4	2.18	3.22	11.73	5.36
Hubbard's Carnation Special 3-10-4	2.58	3.34	10.03	7.16
Hubbard's Carnation Special 3-10-4	2.49	3.19	10.75	4.62
Hubbard's Climax Tobacco Fertilizer 5-3-5	2.84	5.11	3.62	5.74*a*
Hubbard's Corn Fertilizer 4-8-7	1.34	4.15	8.10	7.44
Hubbard's Corn and Grain Fertilizer 3-10-4 (*b*)	.95	3.09	9.91	4.12
Hubbard's Cranberry Fertilizer 5-6-4	.76	5.30	6.60	4.27
Hubbard's Cranberry Fertilizer 5-6-4	.44	5.70	7.18	4.38
Hubbard's Fruit Fertilizer 8-8-8	1.68	8.33	8.32	8.32
Hubbard's Golf Course Fertilizer 8-6-2	5.09	8.14	7.17	3.10
Hubbard's Golf Course Fertilizer 8-6-2	5.09	8.45	6.98	2.73
Hubbard's High Potash Fertilizer 4-8-10	1.54	4.29	7.71	11.00
Hubbard's High Potash Fertilizer 4-8-10	1.39	4.22	7.77	11.29

Hubbard's Potato Fertilizer 5-8-7	1.57	5.13	8.48	7.95
Hubbard's Potato Fertilizer 5-8-7	2.06	5.36	8.00	6.50
Hubbard's Tobacco Grower 6-3-6	3.17	6.00	3.51	6.98*a*
Hubbard's Tobacco Grower 6-3-6	3.23	5.81	3.42	7.81*a*
Hubbard's Tobacco Starter 5-5-15	1.26	4.80	5.93	15.36*a*
Hubbard's Tobacco Starter 5-5-15	1.37	5.11	5.35	15.51*a*
Hubbard's Top Dressing 8-5-8	1.15	8.48	6.43	8.59
Hubbard's Top Dressing 8-5-8	.93	7.85	5.72	9.15
Hubbard's Vegetable Manure 5-8-10	1.37	5.66	10.08	9.26
Hubbard's Vegetable Manure 5-8-10	1.29	5.67	9.64	9.17
Red H Brand 3-10-4	.73	3.21	9.61	4.48
Red H Brand 3-12-6	.66	3.31	12.49	6.57
Red H Brand 3-12-6	.67	3.37	12.05	6.58
Red H Brand 4-8-4	.74	4.28	8.62	4.34
Red H Brand 4-8-4	.63	4.08	8.09	4.57
Red H Brand 4-8-7	.89	4.57	8.76	7.26
Red H Brand 4-8-7	.86	4.36	8.84	7.45
Red H Brand 4-8-10	.66	4.27	8.02	11.03
Red H Brand 4-8-10	.75	4.29	7.90	10.50
Red H Brand 5-8-7	.87	5.22	8.41	7.33
Red H Brand 5-8-7	.87	5.11	8.31	7.07
Red H Brand 5-8-10	.76	5.30	8.08	10.53
Red H Brand 5-8-10	.79	5.25	7.88	10.14
Red H Brand 5-10-5	.73	5.02	10.08	5.40
Red H Brand 5-10-10	.83	5.06	10.74	9.76
Red H Brand 7-6-6	.71	7.46	6.32	6.71
Red H Brand 7-6-6	.79	7.14	6.33	6.36
Red H Brand 7-7-7	.85	6.91	7.14	7.89
Red H Brand 7-7-7	.84	6.98	6.71	7.76
Red H Brand 8-16-14	.81	8.44	19.00	13.50
Red H Brand 8-16-14	.17	8.43	16.93	14.77

a In forms other than muriate.
b See table of "Mixtures showing a commercial shortage of $1 or more per ton."

Mixtures Substantially Complying with Guarantees—Continued

Name of Manufacturer and Brand	Nitrogen Found		Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found
	Water Insoluble Organic	Total		
O. M. Scott & Sons Co.				
Scotts Turf Builder 10-6-4	3.22	10.96	6.09	4.57
Scotts Turf Builder 10-6-4	3.34	10.75	5.40	5.29
Sears, Roebuck & Co.				
Garden Master Plant Food 5-8-7	.36	5.00	8.03	7.04
Garden Master Plant Food 5-8-7	.37	5.00	7.89	7.12
Standard Wholesale Phosphate & Acid Works, Inc.				
Standard 4-8-4	.21	3.63	8.65	4.98
Standard 4-8-4	.21	3.74	8.28	4.80
Standard 4-8-7	.22	3.80	8.00	7.84
Standard 5-8-7	.48	4.73	8.74	7.03
Standard 5-8-7	.50	4.89	8.56	6.85
Standard 5-10-10	.39	4.64	11.10	10.82
Standard 5-10-10	.41	4.80	10.66	11.11
Standard 7-7-7	.89	7.23	6.58	8.67
Sutton & Sons Ltd.				
Sutton's Simplex Fertilizer 5-5-2	.56	5.79	4.97	2.67
Swift & Company Fertilizer Works				
Roselawn 5-8-7	.25	5.09	7.74	7.13
Roselawn 5-8-7	.28	4.97	8.21	6.69
Swift's Red Steer 4-8-4	.39	3.94	8.70	5.39

Swift's Red Steer 5-8-7	.31	5.13	8.23	6.92
Swift's Red Steer 5-8-10	.26	4.84	8.03	9.66
Swift's Red Steer 5-8-10	.27	4.92	8.12	12.49
Swift's Red Steer 8-16-14	.09	7.82	16.46	13.64
Swift's Red Steer 8-16-14	.09	7.89	15.93	13.91
Swift's Red Steer 8-16-14	.09	7.85	15.97	13.81
Swift's Red Steer 8-16-14 (*b*)	.09	7.85	16.56	14.09
Vigoro 4-12-4	.17	4.20	12.24	4.19
Vigoro 4-12-4	.34	4.46	11.83	4.40
Tennessee Corporation				
Loma 5-10-4	.65	5.25	10.13	4.26
Loma 5-10-4	.67	5.53	9.55	5.04
Universal Chemical Co.				
Electra 4-9-3 Plant Food	2.11	5.52	10.95	2.67
Electra 4-9-3 Plant Food	1.25	5.51	10.45	2.87
C. P. Washburn Co.				
Corn and Vegetable 4-8-4	.42	4.04	8.24	4.02
Market Garden 5-8-7	.38	5.29	8.22	7.25
Special Potato 4-8-10	.38	4.49	8.11	10.23
Top Dressing 7-7-7	.38	6.87	7.22	7.48
Winslow Nurseries				
Green Valley Plant Food 5-10-8	2.36	5.23	9.72	7.29
Wirthmore Retail Stores				
Wirthmore 4-8-4	.64	4.23	8.26	4.37
Wirthmore 4-8-4	.81	4.27	8.11	4.90
Wirthmore 4-8-10	.73	4.60	8.14	9.54
Wirthmore 4-8-10	.75	4.38	8.03	10.32
Wirthmore 4-8-10	.69	4.27	7.83	10.58

b See table of "Mixtures showing a commercial shortage of $1 or more per ton."

Mixtures Substantially Complying with Guarantees—Concluded

Name of Manufacturer and Brand	Nitrogen Found		Available Phosphoric Acid Found	Water Soluble Potash (K_2O) Found
	Water Insoluble Organic	Total		
Wirthmore Retail Stores—Concluded				
Wirthmore 5-8-7	.74	5.10	8.39	7.56
Wirthmore 5-8-7	.74	5.15	8.04	7.46
Wirthmore 7-6-6	.79	7.61	6.42	6.46
Wirthmore 7-6-6	.87	7.17	6.29	6.93
Woodruff Fertilizer Works, Inc.				
Woodruff's 4-8-7 Fertilizer	.72	4.20	8.46	7.56
Woodruff's Big Crop Fertilizer 5-8-7	.73	4.98	8.20	7.62
Woodruff's Big Crop Fertilizer 5-8-7	.56	5.03	7.82	7.29
Woodruff's Market Garden Fertilizer 4-8-4	.72	4.05	8.83	4.70
Woodruff's Market Garden Fertilizer 4-8-4	.73	4.01	8.08	4.48
Woodruff's Onion Special Fertilizer 4-10-4	.78	4.14	9.68	4.32
Woodruff's Tobacco Special Fertilizer 6-3-6 *(b)*	2.87	5.90	3.74	6.77*a*

a In forms other than muriate.
b See table of "Mixtures showing a commercial shortage of $1 or more per ton."

Nitrogen Compounds

Sulfate of Ammonia and Nitrate of Soda

Manufacturer	Sulfate of Ammonia			Nitrate of Soda		
	Number of Samples	Nitrogen		Number of Samples	Nitrogen	
		Found	Guaranteed		Found	Guaranteed
Allied Chemical & Dye Corp., The Barrett Division	1*a* 1	21.08 21.13	20.60 20.60	1*a* 1	16.15 16.12	16.00 16.00
Apothecaries Hall Co.	1	20.34	20.50	—	—	—
Chilean Nitrate Sales Corporation	— — —	— — —	— — —	1*b* 1*b* 1*c*	16.09 15.91 16.02	16.00 16.00 16.00
Consolidated Rendering Co.	1 1	20.81 20.85	20.50 20.50	— —	— —	— —
Eastern States Farmers' Exchange	1	20.82	20.50	—	—	—
Ford Motor Co.	1	21.15	20.80	—	—	—
Goulard & Olena, Inc.	1	20.83	20.75	—	—	—
Old Deerfield Fertilizer Co., Inc.	1	20.71	20.50	1	16.10	16.00
Rogers & Hubbard Co.	—	—	—	1	16.00	16.00

a Arcadian *b* Champion Brand *c* Old Style

Nitrate of Soda and Potash

Manufacturer	Nitrogen		Water Soluble Potash	
	Found	Guaranteed	Found	Guaranteed
Chilean Nitrate Sales Corporation	15.21	15.00	14.58	14.00
Old Deerfield Fertilizer Co., Inc.	15.10 15.02	14.00 14.00	14.36 14.17	14.00 14.00

Calcium Cyanamid and Synthetic Urea

Manufacturer	Brand	Number of Samples	Nitrogen	
			Found	Guaranteed
American Cyanamid Co.	Aero Cyanamid 20.6% Aero Cyanamid 20.6% Aero Cyanamid 20.6% Aero Cyanamid 21%	1 1 1 1	20.78 20.73 20.88 22.28	20.60 20.60 20.60 21.00
E. I. du Pont de Nemours & Co., Inc.	Uramon	1	41.86	42.00

Sample Showing Commercial Shortage of More than $1 per Ton

E. I. du Pont de Nemours & Co., Inc.	Uramon	1*a*	40.98	42.00

a Commercial shortage $1.63 per ton.

Cottonseed Meal–Castor Pomace Mixture

Manufacturer	Nitrogen Found	Nitrogen Guaranteed	Manufacturer	Nitrogen Found	Nitrogen Guaranteed
Apothecaries Hall Co.	6.85	6.40	Old Deerfield Fertilizer Co., Inc.	7.07	6.56
	6.91	6.40		6.89	6.56
	6.27	6.40		6.86	6.56
Ashcraft-Wilkinson Co.	7.00	6.56	Olds & Whipple, Inc.	6.24	6.08
	6.71	6.56		6.27	6.08
	6.88	6.56		6.43	6.08
	6.84	6.56		6.39	6.08
	6.82	6.56		6.48	6.08
	6.94	6.56		6.17	6.08
	6.97	6.56		6.21	6.08
Consolidated Rendering Co.	6.80	6.56	**Sample Showing Commercial Shortage of More than $1 per Ton**		
	6.77	6.56			
	6.69	6.56			
	6.77	6.56	Apothecaries Hall Co.	6.21*a*	6.40

a Commercial shortage $1.25 per ton.

Castor Pomace, Cottonseed Meal, Linseed Meal, Soybean Oil Meal

Manufacturer	Brand	Nitrogen Found	Nitrogen Guaranteed
American Agricultural Chemical Co.	Castor Pomace	5.25	4.50
Apothecaries Hall Co.	Castor Pomace	5.80	4.50
	Castor Pomace	6.12	4.50
Archer-Daniels-Midland Co.	Archer Brand 32% Old Process Linseed Meal	5.48	5.00
Armour Fertilizer Works	Castor Pomace	5.60	4.50
Ashcraft-Wilkinson Co.	Cow-Eta Brand Cottonseed Meal	7.41	6.56
Central Soya Co., Inc.	Central Star Brand Soybean Oil Meal	7.76	7.04
Consolidated Rendering Co.	Castor Pomace	5.75	4.50
	Castor Pomace	6.01	4.50
Humphreys-Godwin Co.	Dixie Brand 41% Cottonseed Meal	6.73	6.58
	Dixie Brand 41% Cottonseed Meal	6.82	6.58
	Dixie Brand 41% Cottonseed Meal	6.84	6.58
	Dixie Brand 41% Cottonseed Meal	6.52	6.58
International Minerals & Chemical Corporation	Castor Pomace	6.17	4.53
	Castor Pomace	6.05	4.53
L. B. Lovitt & Co.	Lovit Brand 41% Cottonseed Meal	6.46	6.56
Old Deerfield Fertilizer Co., Inc.	Old Deerfield Castor Pomace	6.16	4.50
Olds & Whipple, Inc.	O & W Castor Pomace	5.90	4.50
Sample Showing Commercial Shortage of More than $1 per Ton			
Ashcraft-Wilkinson Co.	Cow-Eta Brand Cottonseed Meal	5.90*a*	6.56

a Commercial shortage $5.53 per ton.

Animal Tankage, Ground Fish, Process Tankage, Dried Blood, and Milorganite

These products were examined for evidence of adulteration by either the addition of inorganic nitrogen carriers or the inclusion of materials containing the major portion of their nitrogen in water soluble organic form. All samples tested contained normal percentages of water insoluble nitrogen.

The activity of the water insoluble nitrogen of these organic fertilizers was tested by the alkaline permanganate method and in all cases was found well above the minimum percentage considered satisfactory, indicating either the absence of low grade, slowly available organics, or their presence in only small quantities.

None of these samples contained more than traces of ammonia nitrogen.

Dried Blood, Milorganite, and Process Tankage

Manufacturer and Brand	Nitrogen		Available Phosphoric Acid	
	Found	Guaranteed	Found	Guaranteed
Consolidated Chemical Industries, Inc.				
Protena Process Fertilizer Tankage	7.40	7.00	—	—
John Reardon & Sons Division of Wilson & Co., Inc.				
Rearco Dried Blood	12.40	12.00	—	—
Rearco Dried Blood	12.09	12.00	—	—
Sewerage Comission of the City of Milwaukee				
Milorganite	6.13	6.00	2.19	2.00
Samples Showing Commercial Shortage of More than $1 per Ton				
American Agricultural Chemical Co.				
Agrinite	8.00*a*	8.50	—	—
Agrinite	8.03*b*	8.50	—	—
Agrinite	8.07*c*	8.50	—	—
Agrinite	8.12*d*	8.50	—	—
Agrinite	8.16*e*	8.50	—	—

a Commercial shortage $1.97 per ton.
b Commercial shortage $1.74 per ton.
c Commercial shortage $1.71 per ton.
d Commercial shortage $1.51 per ton.
e Commercial shortage $1.34 per ton.

Phosphoric Acid Compounds

Manufacturer and Brand	Number of Samples	Total Phosphoric Acid	Available Phosphoric Acid	
			Found	Guaranteed
American Agricultural Chemical Co.				
18% Normal Superphosphate	16*a*	19.29	18.17	18.00
18% Normal Superphosphate	1	20.15	19.03	18.00
18% Normal Superphosphate	1	19.59	18.67	18.00
AA Superphosphate 20%	1	21.05	20.25	20.00
Apothecaries Hall Co.				
Superphosphate 18%	1	19.09	18.55	18.00
Superphosphate 20%	1	21.61	21.49	20.00
Armour Fertilizer Works				
Armour's Big Crop Superphosphate 16%	1	16.70	15.68	16.00
Armour's Big Crop Superphosphate 20%	1	20.35	19.67	20.00
Consolidated Rendering Co.				
Superphosphate 16%	1	19.15	17.87	16.00
Superphosphate 20%	1	21.41	21.27	20.00
Davison Chemical Corporation				
Davco Granulated 20% Superphosphate	1	21.61	20.97	20.00
Eastern States Farmers' Exchange				
Eastern States Superphosphate 20%	1	20.60	20.40	20.00
Eastern States Superphosphate 47% Triple	1	47.48	47.08	47.00
Goulard & Olena, Inc.				
G & O Superphosphate 20%	1	21.60	20.64	20.00
International Minerals & Chemical Corporation				
International 16% Superphosphate	1	17.78	16.78	16.00
International 20% Superphosphate	1	21.61	20.19	20.00
Old Deerfield Fertilizer Co., Inc.				
Old Deerfield Superphosphate 20%	1	20.85	20.75	20.00
Rogers & Hubbard Co.				
Hubbard's 16% Superphosphate	1	16.48	16.48	16.00
Hubbard's Superphosphate 20%	1	21.41	21.05	20.00

a Composite of 16 samples collected from State Institutions.

Products Supplying Nitrogen and Phosphoric Acid

Dry Ground Fish

Manufacturer	Nitrogen		Total Phosphoric Acid	
	Found	Guaranteed	Found	Guaranteed
Apothecaries Hall Co.	10.20	9.00	6.56	5.00
Berkshire Chemical Co.	10.10	9.00	6.56	5.00
Old Deerfield Fertilizer Co., Inc.	9.70	9.46	7.17	5.00
Olds & Whipple, Inc.	9.74	9.00	7.70	5.00
Rogers & Hubbard Co.	9.73	9.46	6.76	5.00

Animal Tankage

Manufacturer	Nitrogen		Total Phosphoric Acid		Degree of Fineness
	Found	Guaranteed	Found	Guaranteed	Coarser than 1/50 Inch
Consolidated Rendering Co.	8.00	7.40	9.67	9.15	51.9
N. Roy & Son	8.06	7.00	10.85	—*a*	56.4
Woodard Bros.	4.77	4.50	21.35	18.00	68.3

a Guaranteed available phosphoric acid 8%, found 9.03%.

Bone and Tankage

Manufacturer	Nitrogen		Total Phosphoric Acid		Degree of Fineness
	Found	Guaranteed	Found	Guaranteed	Coarser than 1/50 Inch
Consolidated Rendering Co.	3.29	4.00	20.60	20.00	62.4

Ground Bone

Manufacturer	Nitrogen		Total Phosphoric Acid		Degree of Fineness
	Found	Guaranteed	Found	Guaranteed	Coarser than 1/50 Inch
American Agricultural Chemical Co.	2.73	2.47	24.87	23.00	26.0
	2.74	2.47	23.61	23.00	23.4
Apothecaries Hall Co.	2.73	2.25	26.13	22.00	31.7
	3.50	3.50	24.62	20.00	62.2
Armour Fertilizer Works	3.01	2.47	23.91	23.00	38.9
Berkshire Chemical Co.	3.04	2.05	26.78	25.00	34.5
Joseph Breck & Sons Corporation	4.01	3.70	22.61	20.00	49.7
Consolidated Chemical Industries, Inc.	4.05	3.70	22.96	22.00	47.3
Consolidated Rendering Co.	2.75	2.47	24.37	23.00	24.1
Eastern States Farmers' Exchange	2.67	2.30	28.44	23.00	17.5
Goulard & Olena, Inc.	2.44	2.40	26.02	22.75	27.5
A. H. Hoffman, Inc.	3.97	3.70	21.21	20.00	51.6
International Minerals & Chemical Corp.	4.06	2.47	22.41	23.00	54.5
Old Deerfield Fertilizer Co., Inc.	3.68	2.47	23.71	22.00	40.7
Rogers & Hubbard Co.	2.63	2.47	26.02	23.00	26.8
	4.14	3.70	25.12	24.70	7.8
	3.87	3.70	24.62	20.00	19.6
Samples Showing Commercial Shortage of More than $1 per Ton					
Acme Guano Co.	3.90	3.47	22.01*a*	23.00	50.8
American Agricultural Chemical Co.	3.10	2.47	21.81*b*	23.00	34.5
	3.17	2.47	22.01*c*	23.00	34.6
John Reardon & Sons Division of Wilson & Co., Inc.	4.18	2.47	17.93*d*	21.00	53.9
	3.65	2.47	18.74*e*	21.00	34.4
	3.40	2.47	20.05*f*	21.00	41.4
Swift & Company Fertilizer Works	2.20*g*	2.47	27.63	23.00	36.5

Commercial shortage per ton: *a* $1.65, *b* $1.93, *c* $1.53, *d* $4.88, *e* $3.37, *f* $1.44, *g* $1.89.

Potash Compounds

Muriate and High Grade Sulfate of Potash and Sulfate of Potash-Magnesia

Manufacturer	Muriate of Potash		High Grade Sulfate of Potash		
	Water Soluble Potash		Water Soluble Potash		Chlorine
	Found	Guaranteed	Found	Guaranteed	
American Agricultural Chemical Co. (a)	59.34	60.00	48.92	48.00	2.08
	51.32	50.00	—	—	—
Apothecaries Hall Co.	53.44	50.00	49.40	48.00	1.80
Armour Fertilizer Works	61.36	60.00	—	—	—
Berkshire Chemical Co.	61.32	60.00	—	—	—
Consolidated Rendering Co.	60.56	60.00	49.32	48.00	2.40
Eastern States Farmers' Exchange	60.28	60.00	52.20	52.00	1.36
International Minerals & Chemical Corp.	60.32	60.00	—	—	—
Middlesex County Farm Bureau Association	61.68	60.00	—	—	—
Old Deerfield Fertilizer Co., Inc.	60.68	60.00	54.24	52.00	1.64
	—	—	22.60	22.00b	1.60
Rogers & Hubbard Co.	61.36	60.00	—	—	—
Samples Showing Commercial Shortage of More than $1 per Ton					
Apothecaries Hall Co.	58.75c	60.00	—	—	—
Goulard & Olena, Inc.	47.98d	50.00	—	—	—

a Composite of 14 samples collected from State Institutions.
b Low grade sulfate of potash-magnesia (Langbeinite). Water soluble magnesium oxide, 19.00%.
c Commercial shortage $1.01 per ton.
d Commercial shortage $1.64 per ton.

Miscellaneous Fertilizer Materials

Cotton Hull Ashes and Wood Ashes

Manufacturer	Brand	Water Soluble Potash		Chlorine
		Found	Guaranteed	
Apothecaries Hall Co. . .	Cotton Hull Ashes .	34.48	25 00	1.36
J. W. Joynt . . .	Wood Ashes	4 59	3.00	
	Wood Ashes . .	4.86	3 00	
Old Deerfield Fertilizer Co., Inc.	Cotton Hull Ashes .	29.60	30 00	3.12
	Cotton Hull Ashes .	35.72	30.00	1.96

Commercial Peat Products

Manufacturer and Brand	Moisture	Organic Matter	Sand	Nitrogen	
				Found	Guaranteed
L. H. Brague					
Hinsdale Leafmold (Soil-Co)	66 08	30 63	2 63	.56	.50
Florida Humus Co.					
Florida Humus . . .	20 35	73 85	2.70	2.76	2.00

Pulverized Animal Manures

Manufacturer and Brand	Total Nitrogen		Total Phosphoric Acid		Available Phosphoric Acid		Water Soluble Potash		Organic Matter	Acid Insoluble Ash (*a*)	Moisture
	Found	Guaranteed	Found	Guaranteed	Found	Guaranteed	Found	Guaranteed			
American Agricultural Chemical Co.											
Pulverized Sheep & Goat Manure	1.64	1.25	.89	1.00	.89	—	2.62	2.00	38.38	22.33	16.48
Apothecaries Hall Co.											
Sheep Manure	1.49	1.00	.96	.50	.96	—	1.92	1.00	38.23	45.13	5.95
Armour Fertilizer Works											
Sheep Manure	1.59	1.50	1.56	1.00	1.44	—	2.72	2.00	36.95	42.13	6.23
Atkins & Durbrow, Inc.											
Driconure	3.34	2.00	3.33	1.00	3.03	1.00	1.83	1.00	73.40	3.70	11.13
Joseph Breck & Sons Corporation											
Breck's Pulverized Cattle Manure	2.10	2.00	1.56	—	1.44	1.00	3.12	1.00	58.03	25.20	5.28
Breck's Shredded Cattle Manure	2.09	2.00	2.02	—	1.90	1.00	2.77	1.00	56.53	27.03	5.55
Breck's Ram's Head Sheep Manure	2.19	2.00	1.56	—	1.56	1.00	3.28	1.00	58.73	25.23	4.00
Buell Fertilizer Co.											
Buell Peat-Poultry Manure	3.22	2.50	3.43	—	3.21	2.50	1.73	1.50	66.80	8.20	11.78
Consolidated Rendering Co.											
Corenco Sheep Manure	1.65	1.25	1.21	—	1.21	1.00	2.77	2.00	35.53	25.15	12.30
Davey Tree Expert Co											
Davey Shredded Cattle Manure	2.20	1.00	1.79	1.00	1.67	1.00	2.10	2.00	81.15	2.13	6.63
Goulard & Olena, Inc.											
G & O Sheep Manure	2.27	1.00	3.28	—	2.32	1.00	3.95	2.00	37.73	21.43	6.33
A. H. Hoffman, Inc.											
Hoffman's Cow Manure (Dehydrated)	2.17	2.00	2.10	—	2.02	2.00	2.34	2.00	80.83	1.93	6.58
Hoffman's Sheep Manure (Kiln-Dried)	2.54	1.85	1.39	—	1.39	1.00	2.75	2.00	56.65	26.18	6.05

International Minerals & Chemical Co.											
International Caribee Sheep Manure	1.94	1.20	1.31	—	1.31	.75	3.60	2.00	34.28	22.95	13.43
Pulverized Manure Co.											
Wizard Brand Cow Manure	2.02	2.00	1.19	—	1.07	1.00	1.10	1.00	54.38	29.08	7.13
Ramshorn Mills, Inc.											
Sheep Manure—Wool Waste	1.76	2.00	.50	.50	.50	—	4.88	4.50	44.08	31.50	8.80
Rogers & Hubbard Co.											
Domestic Sheep Manure	1.83	1.50	1.51	1.00	1.03	—	1.88	1.50	49.13	25.50	6.95
Swift & Company Fertilizer Works											
Swift's Sheep Manure	1.93	1.85	1.31	1.00	1.31	—	2.64	1.75	52.55	28.80	3.78
Walker-Gordon Laboratory Co., Inc.											
Bovung	2.17	2.00	2.22	2.00	2.02	—	2.28	2.00	81.25	1.78	4.78
Samples Seriously Deficient											
Norwood Brand Fertilizer Co.											
Norwood Brand Sheep Manure Screened from Wool Waste	1.46	1.83	.36	.89	.26	—	3.72	1.03	34.72	47.98	2.90
Norwood Brand Sheep Manure Screened from Wool Waste	1.68	1.83	.30	.89	.30	—	3.75	1.03	37.75	42.73	3.40
Norwood Brand Sheep Manure Screened from Wool Waste	1.33	1.83	.20	.89	.20	—	3.67	1.03	32.45	48.78	4.73
Norwood Brand Sheep Manure Screened from Wool Waste	1.24	1.83	.30	.89	—		4.05	1.03	32.35	50.60	3.76
Pulverized Manure Co.											
Wizard Brand Pulverized Sheep Manure	1.65	2.00	1.51	—	1.37	1.00	3.74	2.00	54.28	23.70	5.75

a The acid insoluble ash is mainly sand although it may contain other materials which are practically valueless as plant food

AGRICULTURAL LIME PRODUCTS

Manufacturers and Brands

During 1942, 18 firms registered for sale in Massachusetts 42 brands of lime products, manufactured and sold for neutralizing acid soils, one brand of gypsum, and one brand of agricultural talc. The products are grouped as follows:

Hydrated or slaked lime	23
Pulverized and ground limestone	18
Lime ashes	1
Total	42
Gypsum	1
Talc	1

The analytical results which appear in this bulletin represent officially drawn samples secured by the same sampling agents who drew the samples of commercial fertilizer which served for the inspection of that commodity; the samples therefore came from every section of the state and are, we believe, representative of the lime products sold in Massachusetts as soil amendments.

We were not successful in securing samples of the following brands:

Brewer & Co., Inc., 45 Arctic Street, Worcester, Mass.
Green Mountain Handy Hydrate
Lime Kiln Ashes
Producto Agricultural Lime
Conklin Limestone Co., Inc., Canaan, Conn.
High Magnesium Agricultural Ground Limestone
L. A. Howard & N. L. Howard, Proctorsville, Vt.
Howard Talc
Kelley Island Lime & Transport Co., 1122 Leader Building, Cleveland, Ohio
Tiger All Purpose Hydrated Lime
Solvay Process Co., Syracuse, N. Y.
Solvay Pulverized Limestone
United States Gypsum Co., 300 West Adams Street, Chicago, Ill.
USG Red Top Hydrated Lime

Variations and Deficiencies Found in the Composition of Lime Products

Of the lime products effective in neutralizing soil acidity, about 64 per cent of those analyzed fully met the minimum guarantee; of the 20 ground limestone products, 8 showed deficiencies. Most of the deficiencies were not of a serious nature as the companion ingredient was present in sufficient excess to more than make up the full neutralizing value of the product as based on the stated guarantee. The same may be said of the hydrated lime products where 6 out of 19 samples showed deficiencies. The tables of analyses show the extent of variations from the guaranteed composition.

Explanation of Tables of Analyses

Tables I, II, III, "Neutralizing value expressed in terms of calcium oxide" represents the acid neutralizing value of both the magnesium and the calcium. The figures in the "per cent" column are obtained by a direct titration with standard acid. The "pounds in one ton" are secured by multiplying the figures in the "per cent" column by 20.

"Insoluble matter" represents material which is insoluble in dilute hydrochloric acid to which a few drops of nitric acid have been added, and is mainly sand.

Tables II and III, "Carbonates of calcium and magnesium". The figures in this column are exclusive of the small amounts of calcium and magnesium combined as basic silicates; these are readily soluble in mineral acid solutions but obviously should not be classed as carbonates.

Under "Mechanical analysis" the figures represent in round numbers the percentage of product that would pass or be retained by the meshed sieves mentioned.

The limestone products have been published in two groups or grades (see tables II and III) according to fineness of grinding and to conform to definitions voted by the Association of Official Agricultural Chemists at their 1936 meeting.

Table I. Hydrated or Slaked Lime

Name of Manufacturer and Brand	Calcium Oxide (CaO)		Magnesium Oxide (MgO)		Neutralizing Value Expressed in Terms of Calcium Oxide		Insoluble Matter
	Found	Guaranteed	Found	Guaranteed	Per Cent	Pounds in One Ton	
Brewer & Co., Inc., 45 Arctic St., Worcester, Mass.							
Snow Fluff Agricultural Hydrate	72.25	70.00	1.05	5.00	73.02	1460	.33
Sure Crop Agricultural Hydrate	71.35	65.00	1.45	1.00	73.16	1463	.65
Harris Lime Co., Saylesville, R. I.							
Harris Agricultural Hydrate	49.17	50.00	23.45	22.00	80.26	1605	7.68
A. H. Hoffman, Inc., Landisville, Penn.							
Hoffman's Hydrated Lime	68.17	70.00	2.55	1.00	71.06	1421	1.98
Hoosac Valley Lime Co., Inc., Adams, Mass.							
Adams Land Lime	62.60	60.00	1.80	.50	64.80	1296	7.58
Hoosac Agricultural Hydrated Lime	72.85	65.00	1.00	.50	73.30	1466	1.27
Lawrence Portland Cement Co., Thomaston, Maine							
Dragon "Mainrok" Land Lime	66.90	60.00	1.20	.20	67.86	1357	2.45
Lee Lime Corporation, Lee, Mass.							
Lee Double Strength Agricultural Hydrated Lime	47.68	46.00	31.45	31.00	89.88	1798	.95
Lee Land Lime	42.46	35.00	29.25	25.00	82.50	1650	.75
Tobey Agra Hydrate	41.27	35.00	28.60	25.00	80.54	1611	1.78
Limestone Products Corporation of America, Newton, N. J.							
"Lime Crest" Brand Calcite Hydrated Lime for Agricultural Use	68.77	70.00	4.55	1.00	74.54	1491	1.73
Clifford L. Miller, West Stockbridge, Mass.							
Monarque Hydrated Lime	66.60	60.00	5.80	4.00	74.82	1496	1.20
New England Lime Co., Adams, Mass.							
Nelco Agricultural Hydrated Lime	73.53	70.00	1.05	.50	74.00	1480	1.25
Nelco Agricultural Hydrated Lime	58.10	47.00	24.13	31.00	90.30	1806	1.05
Nelco Land Lime (Canaan, Conn.)	43.35	35.00	29.90	25.00	82.76	1655	2.05
Rockland-Rockport Lime Co., Inc., Rockland, Maine							
R-R Land Lime, Grade C	63.05	60.00	1.65	.50	64.80	1296	6.75
Sanilime	68.47	70.00	.55	.20	69.25	1385	.95
United States Gypsum Co., 300 West Adams St., Chicago, Ill.							
USG Agricultural Hydrated Lime	71.65	70.00	1.10	1.00	73.02	1460	1.33
USG Agricultural Land Lime	71.90	60.00	1.20	—	72.75	1455	1.30

Table II. Pulverized Limestone (Fine-Ground Limestone)

Name of Manufacturer and Brand	Calcium Oxide (CaO)		Magnesium Oxide (MgO)		Carbonates of Calcium and Magnesium		Neutralizing Value Expressed in Terms of Calcium Oxide		Insoluble Matter	Mechanical Analysis (Per Cent)	
	Found	Guaranteed	Found	Guaranteed	Found	Guaranteed	Per Cent	Pounds In One Ton		Finer than 100-mesh	Coarser than 20-mesh
Hoosac Marble Co., North Adams, Mass.											
Ground Limestone	53.94	52.46	.72	.65	97.26	95.29	54.48	1090	2.50	90.0	none
Ground Limestone	54.24	52.46	.82	.65	97.29	95.25	54.69	1094	2.13	100.0	none
Hoosac Valley Lime Co., Inc., Adams, Mass.											
Hoosac Agricultural Limestone	53.12	51.50	.80	.50	96.47	90.00	54.23	1085	2.82	83.3	.8
Lee Lime Corporation, Lee, Mass.											
Tobey Pulverized Limestone	44.62	35.00	7.45	10.00	94.53	94.00	54.30	1086	5.15	79.0	.6
Limestone Products Corporation of America, Newton, N. J.											
"Lime Crest" Brand Calcite Pulverized Limestone	42.32	42.00	9.80	2.60	95.74	95.00	51.76	1095	4.13	87.0	.1
New England Lime Co., Adams, Mass.											
Nelco Agricultural Limestone (Adams)	52.75	53.50	1.36	.40	96.49	96.30	53.95	1079	3.28	88.9	none
Nelco Agricultural Limestone (Canaan, Conn.)	31.14	30.00	21.30	21.00	94.83	97.40	59.15	1183	2.75	78.8	.1
Rockland-Rockport Lime Co. Inc.											
R-R Ground Limestone, Grade C	39.25	50.00	12.05		94.43	96.00	53.79	1076	5.20	86.7	none
R-R Ground Limestone, Grade M	33.15	30.00	18.95	17.00	95.78	98.00	57.65	1153	2.78	78.2	none
D. U. Smith & Bro., Ashley Falls, Mass.											
Ashley White Dolomite Agricultural Limestone	30.77	30.00	21.88	21.00	98.30	98.00	59.65	1193	.65	75.2	1.1
United States Gypsum Co., 300 West Adams St., Chicago, Ill.											
USG Agricultural Limestone—Farnams, Mass.	54.39	50.50	1.00	.50	94.48	91.00	54.69	1094	1.98	87.7	none
USG Agricultural Limestone—Farnams, Mass.	53.05	50.50	1.18	.50	97.14	91.00	54.41	1088	2.50	96.7	none

Table III. Ground Limestone (Coarse-Ground Limestone)

Name of Manufacturer and Brand	Calcium Oxide (CaO)		Magnesium Oxide (MgO)		Carbonates of Calcium and Magnesium		Neutralizing Value Expressed in Terms of Calcium Oxide		Insoluble Matter	Mechanical Analysis (Per Cent)	
	Found	Guaranteed	Found	Guaranteed	Found	Guaranteed	Per Cent	Pounds In One Ton		Finer than 100-mesh	Coarser than 20-mesh
Grangers Manufacturing Co., 53 State St., Boston, Mass.											
Grangers Agricultural Limestone	43.96	54.00	5.58	6.00	89.99	98.00	51.07	1021	9.95	54.8	2.2
Harris Lime Co., Saylesville, R. I.											
Harris Agricultural Ground Limestone	34.64	30.00	16.75	20.00	96.12	—	56.67	1133	3.88	70.8	none
Lee Lime Corporation, Lee, Mass.											
Lee Pulverized Limestone (composite of 3 samples)	31.29	30.00	21.55	20.00	97.00	99.00	59.53	1191	1.13	63.3	.3
Lee Pulverized Limestone	31.14	30.00	21.00	20.00	96.78	99.00	59.22	1184	1.38	52.7	none
Clifford L. Miller, West Stockbridge, Mass.											
Monarque Agricultural Dolomite	30.39	30.00	17.20	17.00	88.86	—	53.02	1060	10.50	71.3	.2
Monarque Pulverized Limestone (composite of 3 samples)	45.29	39.00	7.43	11.00	94.71	90.00	54.21	1084	4.50	61.9	.2
Monarque Pulverized Limestone	30.39	39.00	15.85	11.00	85.93	90.00	51.10	1022	13.38	73.5	.7
United States Gypsum Co., 300 West Adams St., Chicago, Ill											
USG Agricultural Limestone—Falls Village, Conn.	30.99	30.00	20.95	20.00	96.92	95.00	58.94	1179	2.03	26.3	none

Table IV. Gypsum or Land Plaster

Manufacturer and Brand	Calcium Oxide (CaO)		Calcium Sulfate ($CaSO_4$)		Moisture
	Found	Guaranteed	Found	Guaranteed	
United States Gypsum Co., 300 West Adams St., Chicago, Ill.					
USG Ben Franklin Agricultural Gypsum	32.93	30.00	76.41	64.50	15.72

DIRECTORY OF MANUFACTURERS WHO REGISTERED FERTILIZERS FOR SALE IN MASSACHUSETTS IN 1942

Acme Guano Co., 310 National Marine Bank Bldg., Baltimore, Md.
Agricultural Laboratories, Inc., Columbus, Ohio
Allied Chemical & Dye Corporation, The Barrett Division, 40 Rector St., New York, N. Y.
American Agricultural Chemical Co., 285 River St., North Weymouth, Mass.
American Cyanamid Co., 30 Rockefeller Plaza, New York., N. Y.
American Potash & Chemical Corporation, 70 Pine St., New York, N. Y.
Apothecaries Hall Co., Waterbury, Conn.
Archer-Daniels-Midland Co., Minneapolis, Minn.
Armour Fertilizer Works, 120 Broadway, New York, N. Y.
Ashcraft-Wilkinson Co., 601 Trust Company of Georgia Bldg., Atlanta, Ga.
Atkins & Durbrow, Inc., 165 John St., New York, N. Y.
Ernest J. Bantle, 130 Griswold St., Glastonbury, Conn.
F. A. Bartlett Tree Expert Co., Inc., 60 Canal St., Stamford, Conn.
Baugh & Sons Co., 20 South Delaware Ave., Philadelphia, Penn.
Belmont Gardens, W. E. Lenk, Proprietor, 170 Brighton St., Belmont, Mass.
Berkshire Chemical Co., 92 Howard Ave., Bridgeport, Conn.
L. H. Brague, 10 Taconic St., Pittsfield, Mass.
Joseph Breck & Sons Corporation, 85 State St., Boston, Mass.
Brewer Tree Expert Co., 390 Main St., Worcester, Mass.
Buell Fertilizer Co., Exeter, N. H.
Central Soya Co., Inc., Fort Wayne, Ind.
Chilean Nitrate Sales Corporation, 120 Broadway, New York, N. Y.
Collins Seed Service Co., 131 Beverly St., Boston, Mass.
Consolidated Chemical Industries, Inc., 630 Fifth Ave., New York, N. Y.
Consolidated Rendering Co., 178 Atlantic Ave., Boston, Mass.
Davey Tree Expert Co., 117 South Water St., Kent, Ohio.
Davison Chemical Corporation, Rouse Bldg., Baltimore, Md.
E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.
Eastern States Farmers' Exchange, Springfield, Mass.
Thomas W. Emerson Co., 70 Park St., Beverly, Mass.
Essex County Co-operative Farming Association, Topsfield, Mass.
Excell Laboratories, 2625 Indiana Ave., Chicago, Ill.
Florida Humus Co., Zellwood, Florida
Ford Motor Co., 3000 Schaefer Road, Dearborn, Mich.
H. L. Frost & Higgins Co., 20 Mill St., Arlington, Mass.
Glendale Poultry Farm, Somerset, Mass.
Glidden Co., Soya Products Division, 5165 West Moffat St., Chicago, Ill.
Goulard & Olena, Inc., 140 Liberty St., New York, N. Y.
Thomas J. Grey Co., 16 South Market St., Boston, Mass.
Hartney-Amalia, Inc., 581 Boylston St., Boston, Mass.
Henderson & Herndon Tree Co., Inc., 9 Story Ave., Beverly, Mass.
Hixon Tree Co., Segreganset, Mass.
A. H. Hoffman, Inc., Landisville, Penn.
Humphreys-Godwin Co., Memphis, Tenn.
Hydroponic Chemical Co., Inc., 315 West 39th St., New York, N. Y.
Hy-Trous Corporation, 131 State St., Cambridge, Mass.
International Minerals & Chemical Corporation, Woburn, Mass.
J. W. Joynt, Lucknow, Ontario, Canada

L. B. Lovitt & Co., 1004 Falls Bldg., Memphis, Tenn.
John D. Lyon, Inc., 17 Bartlett Ave., Belmont, Mass.
McClain Brothers Co., Canton, Ohio.
Mechling Bros. Chemicals, Division of General Chemical Co., 12 South 12th St., Philadelphia, Penn.
Middlesex County Farm Bureau Association, 131 Lexington St., Waltham, Mass.
National Plant Foods, Inc., Cranbury, N. J.
New England Toro Co., 1121 Washington St., West Newton, Mass.
New England Tree Expert Co., Inc., 539 Smithfield Ave., Pawtucket, R. I.
Norwood Brand Fertilizer Co., Park St., North Reading, Mass.
Old Deerfield Fertilizer Co., Inc., South Deerfield, Mass.
Olds & Whipple, Inc., 168 State St., Hartford, Conn.
F. G. Phillips Co., 37 Circuit Road, Dedham, Mass.
Plantabbs Co., Baltimore, Md.
Plantspur Products Co., 1072 West Side Ave., Jersey City, N. J.
Pulverized Manure Co., 503 Exchange Bldg., Union Stock Yards, Chicago, Ill.
Ramshorn Mills, Inc., West Millbury, Mass.
Ra-Pid-Gro Corporation, 88 Ossian St., Dansville, N. Y.
John Reardon & Sons Division of Wilson & Co., Inc., 51 Waverly St., Cambridge, Mass.
Rogers & Hubbard Co., Portland, Conn.
William H. Rorer, Inc., 254 South Fourth St., Philadelphia, Penn.
N. Roy & Son, South Attleboro, Mass.
Ruhm Phosphate & Chemical Co., Mt. Pleasant, Tenn.
O. M. Scott & Sons Co., Marysville, Ohio.
Sears, Roebuck & Co., 925 South Homan Ave., Chicago, Ill.
Sewerage Commission of the City of Milwaukee, P. O. Box 2079, Milwaukee, Wis.
Standard Wholesale Phosphate & Acid Works, Inc., Baltimore, Md.
Stockdale Fertilizer Co., Morris, Ill.
Sutton & Sons Ltd., Geo H. Penson, Resident Representative, Glen Wood Road, Glen Head, L. I., New York.
Swift & Company Fertilizer Works, 910 Court Square Bldg., Baltimore, Md.
Tennessee Corporation, Lockland, Ohio.
Universal Chemical Co., 106 Ontario St., Lynn, Mass.
Walker-Gordon Laboratory Co., Inc., Plainsboro, N. J.
C. P. Washburn Co., Middleboro, Mass.
Winslow Nurseries, Needham, Mass.
Wirthmore Retail Stores, Greenfield, Mass.
Woodard Bros., Greenfield, Mass.
Woodruff Fertilizer Works, Inc., North Haven, Conn.

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